



FIRST LINES

OF THE

PRACTICE OF PHYSIC.

FIRST LINES

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PRACTICE OF PRIVACE

EDINBURGH:
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FIRST LINES

OF THE

PRACTICE OF PHYSIC,

BY

WILLIAM CULLEN, M. D.

FORMERLY PROFESSOR OF THE PRACTICE OF PHYSIC IN THE UNIVERSITY OF EDINBURGH, &c. &c. &c.

A NEW EDITION,

WITH AN APPENDIX,

CONTAINING

A VIEW OF THE MOST IMPORTANT FACTS WHICH HAVE BEEN ASCERTAINED, AND PRINCIPLES WHICH HAVE BEEN ADOPTED, IN REGARD TO THE NATURE AND TREATMENT OF DISEASES, SINCE THE DEATH OF THE AUTHOR:

COMMENCED BY THE LATE

WILLIAM CULLEN, M. D.

&c. &c.

CONTINUED AND COMPLETED BY

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IN TWO VOLUMES.

VOL. I.

EDINBURGH:

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this work, has stated, that " in establishing a proper Pathology, there is nothing that has been of more service than the dissection of morbid bodies." It is to the more extended and accurate study of Pathological Anatomy, then in its infancy, with the aid of some of the more recent discoveries in Physiology, that the additional light which has been thrown upon the nature and proximate causes of diseases, since the time of Dr Cullen, is chiefly to be ascribed. These important branches have been of late years cultivated, both in this country- and on the continent, sometimes perhaps too exclusively, but certainly with much zeal, assiduity, and success. And if the knowledge and insight acquired by these means have not as yet been attended with corresponding improvement in the treatment of diseases, we may at least say, with Dr Cullen, that we " are confident that we are at present in a better train of investigation than physicians were in before the time of Dr Hoffman."

With a view to render the present Edition of the "First Lines" as useful as possible to those engaged in the study of their profession, (for whom they were originally intended,) it was proposed to subjoin an Appendix, consisting of Notes and Illustrations, which should contain a summary of the present state of medicine. The preparation of the Appendix was intrusted to the late Dr William Cullen, whose premature death, while he was engaged in the prosecution of this undertaking, has deprived the profession of a great part of that original matter which, from his well-known talents and

acquirements, might have been expected to result from his labours *.

The work was subsequently put into the hands of the present Editor, to whom it has appeared, after considering the limits both in point of space and time within which he has been confined, that, in the part of the Appendix for which he is responsible, he would best promote the object intended, by confining himself, as nearly as possible, to a view of the most important facts which have been ascertained in regard to the nature of diseases, chiefly by the cultivation of Pathological Anatomy; and an account of the changes which have been proposed, and generally adopted, in their treatment, since the time of the Author of the "First Lines." He has, therefore, except in so far as they appeared to bear directly upon points of practice, avoided all allusion to hypothetical discussions or doctrines on any of the subjects which have fallen to his share.

Dr Thomson, in the dedication of his Edition of Dr Cullen's Works, has stated, that one of his objects in preparing it for the press, was to put the public in possession of documents (from Dr Cullen's MS. papers) that appeared to him "to establish Dr Cullen's claims to originality for observations and doctrines, which, un-

^{*} That part of the Appendix which was written by the late Dr Cullen concludes at the bottom of page 496. It may be proper to mention, that the portion of the Appendix here alluded to, as well as the whole of the text, had been printed before the Work was put into the hands of the present Editor; so that it was not in his power to make any alterations or additions. A few Notes, however, which appeared to him to be called for, have been placed at the end of the first volume.

der various modifications, have been repeatedly brought forward since his time, and made the bases of new theories or systems of medicine." On every occasion where any part of these passages from Dr Cullen's MS. lectures could tend to establish his priority of observation, or to elucidate the subject under consideration in the Appendix, his own expressions have been preferred and quoted. As the Editor is in possession of his late Father's Notes of his Lectures on the Practice of Physic, he has given the results of his long experience, whereever it appeared to him that such a statement might be of importance.

The definitions of the genera and species from Dr Cullen's Synopsis have been placed, for the convenience of reference, at the commencement of the respective Chapters.

J. C. G.

Edinburgh, October 1828.

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AUTHOR'S PREFACE.

To deliver a system of the doctrines and rules proper for directing the practice of physic, is an undertaking that appears to me to be attended with great difficulty; and, after an experience of more than forty years in that practice, as well as after much reading and reflection, it was with great diffidence that I ever entered upon such a work. It was, however, what seemed to be my duty as a professor, that induced me to make the attempt; and I was engaged in it by the same sentiments that the illustrious Dr Boerhaave has expressed in the following passage of the preface to his Institutions:- "Simul enim docendo admotus eram sensi, " propriorum cogitatorum explicatione docentem plus pro-" ficere, quam si opus ab alio conscriptum interpretari sus-" cipit. Sua quippe optime intelligit, sua cuique præ cæte-" ris placent, unde clarior fere doctrina, atque animata ple-" rumque sequitur oratio. Qui vero sensa alterius exponit, "infelicius sæpenumero eadem assequitur; quumque suo " quisque sensu abundat, multa refutanda frequenter inve-" nit, unde gravem frustra laborem aggravat, minusque in-" citatâ dictione utitur." It is well known, that a text-book is not only extremely useful, but necessary, to students who are to hear lectures: and, from the same considerations that moved Dr Boerhaave, I also wished to have one for myself; while, at the same time, from some peculiar circumstances in my situation, I had some additional inducements to undertake such a work.

Before I was established as a professor of the practice of physic in this university, I had been employed in giving clinical lectures in the Royal Infirmary; and upon that occasion had delivered what, in my own opinion, seemed most just, with regard to both the nature and the cure of the diseases of which I had occasion to treat. But I soon found, that my doctrines were taken notice of as new, and peculiar to myself; and were accordingly severely criticised by those who, having long before been trained up in the system of Boerhaave, had continued to think that that system neither required any change, nor admitted of any amendment. I found, at the same time, that my doctrines were frequently criticised by persons who either had not been informed of them correctly, or who seemed not to understand them fully; and therefore, as soon as I was employed to teach a more complete system of the practice of physic, I judged it necessary to publish a text-book, not only for the benefit of my hearers, but that I might also have an opportunity of obtaining the opinion of the public more at large, and thereby be enabled either to vindicate my doctrines, or be taught to correct them. These were the motives for my attempting the volumes I formerly published; and now, from many years' experience of their utility to my hearers, as well as from the favourable reception they have met with from the public, I am induced to give a new edition of this work, not only, as I hope, more correct in many parts, but also more complete and comprehensive in its general extent.

At the first publication of this work, it was intended chiefly for the use of those gentlemen who attended my lectures; although, even then, for the reasons I have mentioned, it was rendered more full than text-books commonly are; and, in the repeated editions I have since had occasion to give, I have been constantly endeavouring to render it more full and comprehensive. In these respects, I hope the present edition will appear to be rendered more fit for general use, and better

calculated to afford satisfaction to all those who think they may still receive any instruction from reading on this subject.

While I thus deliver my work in its now more improved state, with the hopes that it may be of use to others, as well as to those who hear my lectures, I must, at the same time, observe, that it presents a system which is in many respects new; and therefore I apprehend it to be not only proper, but necessary, that I should explain here upon what grounds, and from what considerations, this has been attempted.

In the first place, I apprehend, that in every branch of science, with respect to which new facts are daily acquired, and these consequently giving occasion to new reflections, which correct the principles formerly adopted, it is necessary from time to time to reform and renew the whole system, with all the additions and amendments which it has received, and is then capable of. That at present this is requisite with regard to the science of medicine, will, I believe, readily occur to every person who at all thinks for himself, and is acquainted with the systems which have hitherto prevailed. therefore, I attempt this, I think it may be allowable, and upon this occasion even proper, that I should offer some remarks on the principal systems of medicine which have of late prevailed in Europe, and that I should take notice of the present state of physic, as it is influenced by these. remarks, I hope, may be of some use to those who attempt to improve their knowledge by the reading of books.

Whether the practice of physic should admit of reasoning, or be entirely rested upon experience, has long been, and may still be, a matter of dispute. I shall not, however, at present enter upon the discussion of this, because I can venture to assert, that, at almost all times, the practice has been, and still is with every person, founded more or less upon certain principles established by reasoning: and therefore, in attempting to offer some view of the present state of physic, I must give an account of those systems of the principles of

the science which have lately prevailed, or may be supposed still to prevail, in Europe.

When, after many ages of darkness, which had destroyed almost the whole of ancient literature, learning was again restored in the fifteenth century; so from causes which are well known, it was the system of Galen alone that the physicians of those days became acquainted with; and during the course of the sixteenth century, the study of physicians was almost solely employed in explaining and confirming that system. Early, indeed, in the sixteenth century, the noted Paracelsus had laid the foundation of a chemical system, which was in direct opposition to that of Galen; and, by the efficacy of the medicines employed by Paracelsus and his followers, their system came to be received by many: but the systematic physicians continued to be chiefly Galenists, and kept possession of the schools till the middle of the seventeenth century. It is not, however, necessary here to enter into any further detail respecting the fate of these two opposite sects; for the only circumstance concerning them, which I would wish at present to point out, is, that in the writings of both, the explanations they severally attempted to give of the phenomena of health or sickness, turned entirely upon the state of the fluids of the body.

Such was the state of the science of physic till about the middle of the seventeenth century, when the circulation of the blood came to be generally known and admitted; and when this, together with the discovery of the receptacle of the chyle, and of the thoracic duct, finally exploded the Galenic system. About the same period, a considerable revolution had taken place in the system of natural philosophy. In the course of the seventeenth century, Galileo had introduced mathematical reasoning; and Lord Bacon having proposed the method of induction, had thereby excited a disposition to observe facts, and to make experiments. These new modes of philosophizing, it might be supposed, would soon have had

some influence on the state of medicine; but the progress of this was slow. The knowledge of the circulation did indeed necessarily lead to the consideration, as well as to a clearer view, of the organic system in animal bodies; which again led to the application of the mechanical philosophy towards explaining the phenomena of the animal economy; and it was applied accordingly, and continued, till very lately, to be the fashionable mode of reasoning on the subject. Such reasoning, indeed, must still, in several respects, continue to be applied; but it would be easy to shew, that it neither could, nor ever can be, applied to any great extent in explaining the animal economy; and we must therefore look for other circumstances, which had a greater share in modelling the system of physic.

With this view, it may be remarked, that, till the period . just now mentioned, every physician, whether Galenist or chemist, had been so much accustomed to consider the state and condition of the fluids, both as the cause of disease, and as the foundation for explaining the operation of medicines, that what we may term an HUMORAL PATHOLOGY still continued to make a great part of every system. In these circumstances, it was soon perceived, that chemistry promised a much better explanation than the Galenic or Aristotelian philosophy had done; and therefore, while the latter was entirely laid aside, a chemical reasoning was every where received. Lord Bacon, with his usual sagacity, had early observed, that chemistry promised a great number of facts, and he thereby gave it credit; whilst the Corpuscularian philosophy, restored by Gassendi, readily united with the reasonings of the chemists; and the philosophy of Des Cartes readily united with both. From all these circumstances, an humoral, and chiefly a chemical pathology, came to prevail very much till the end of the last century; and has indeed continued to have a great share in our systems, down to the present time.

It is proper now, however, to observe, that about the he-

ginning of the present century, when every part of science came to be on a more improved and correct footing, there appeared in the writings of Stahl, of Hoffman, and of Boerhaave, three new, and considerably different systems of physic, which have ever since had a great share in directing the practice of it. In order, therefore, to give a nearer view of the present state of physic, I shall offer some remarks upon these different systems; endeavouring to point out the advantages, as well as the disadvantages of each, and how far they still prevail; or, according to my judgment, deserve to do so.

I shall begin with considering that of Dr Stahl, which, I think, appeared first, and for a long time after was the prevailing system in Germany.

The chief and leading principle of this system is, that the rational soul of man governs the whole economy of his body. At all times, physicians have observed, that the animal economy has in itself a power or condition, by which, in many instances, it resists the injuries which threaten it; and by which it also, on many occasions, corrects or removes the disorders induced, or arising in it. This power, physicians very anciently attributed, under a vague idea, to an agent in the system, which they called NATURE; and the language of a vis conservatrix et medicatrix naturæ, has continued in the schools of medicine from the most ancient times to the present.

Dr Stahl has explicitly founded his system on the supposition, that the power of nature, so much talked of, is entirely in the rational soul. He supposes, that, upon many occasions, the soul acts independently of the state of the body; and that without any physical necessity arising from that state, the soul, purely in consequence of its intelligence, perceiving the tendency of noxious powers threatening, or of disorders anywise arising in the system, immediately excites such motions in the body as are suited to obviate the hurtful or pernicious consequences which might otherwise take place. Many of my readers may think it was hardly necessary for me to take no-

tice of a system founded upon so fanciful an hypothesis; but there is often so much seeming appearance of intelligence and design in the operations of the animal economy, that many eminent persons, as Perrault in France, Nichols and Mead in England, Porterfield and Simson in Scotland, and Gaubius in Holland, have very much countenanced the same opinion, and it is therefore certainly entitled to some regard. It is not, however, necessary for me here to enter into any refutation of it. Dr Hoffman has done this fully, in his Commentarius de differentia inter Hoffmanni doctrinam medico-mechanicam et G. E. Stahlii medico-organicam; and both Boerhaave and Haller, though no favourers of materialism, have maintained a doctrine very opposite to that of Stahl.

In my Physiology, I have offered some arguments against the same; and I shall only add now, that whoever considers what has been said by Dr Nichols in his Oratio de Anima Medica, and by Dr Gaubius in some parts of his Pathology, must perceive, that the admitting of such a capricious government of the animal economy, as these authors in some instances suppose, would at once lead us to reject all the physical and mechanical reasoning we might employ concerning the human body. Dr Stahl himself seems to have been aware of this; and therefore, in his preface to Juncker's Conspectus Therapeiæ Specialis, has acknowledged, that his general principle was not at all necessary; which is in effect saying, that it is not compatible with any system of principles that ought to govern our practice. Upon this footing, I might have at once rejected the Stahlian principle: but it is even dangerous to bring any such principle into view; for after all Dr Stahl had said in the passage just now referred to, I find, that, in the whole of their practice, both he and his followers have been very much governed by their general principle. Trusting much to the constant attention and wisdom of nature, they have proposed the art of curing by expectation; have therefore, for the most part, proposed only very inert and

frivolous remedies; have zealously opposed the use of some of the most efficacious, such as opium and the Peruvian bark; and are extremely reserved in the use of general remedies, such as bleeding, vomiting, &c.

Although these remarks, upon a system which may now be considered as exploded or neglected, may seem superfluous, I have been willing to give these strictures on the Stahlian system, that I might carry my remarks a little farther, and take this opportunity of observing, that, in whatever manner we may explain what have been called the operations of nature, it appears to me, that the general doctrine of nature curing diseases, the so-much-vaunted Hippocratic method of curing, has often had a very baneful influence on the practice of physic; as either leading physicians into, or continuing them in, a weak and feeble practice, and, at the same time, superseding or discouraging all the attempts of Dr Huxham has properly observed, that even in the hands of Sydenham, it had this effect. Although it may sometimes avoid the mischiefs of bold and rash practitioners, vet it certainly produces that caution and timidity which have ever opposed the introduction of new and efficacious remedies. The opposition to chemical medicines in the sixteenth and seventeenth centuries, and the noted condemnation of antimony, by the medical faculty of Paris, are to be attributed chiefly to those prejudices, which the physicians of France did not entirely get the better of for near an hundred years after. We may take notice of the reserve it produced in Boerhaave, with respect to the use of the Peruvian bark. We have had lately published, under the title of Constitutiones Epidemica, notes of the particular practice of the late Baron Van Swieten; upon which the editor very properly observes, that the use of the bark, in intermitting fevers, appears very rarely in that practice; and we know very well where Van Swieten learned that reserve.

I might go farther, and shew how much the attention to

the Autocrateia, allowed of, in one shape or other, by every sect, has corrupted the practice among all physicians, from Hippocrates to Stahl. It must, however, be sufficiently obvious, and I shall conclude the subject with observing, that although the vis medicatrix natura must unavoidably be received as a fact; yet, wherever it is admitted, it throws an obscurity upon our system; and it is only where the impotence of our art is very manifest and considerable, that we ought to admit of it in practice.

To finish our remarks upon the Stahlian system, I shall shortly observe, that it did not depend entirely upon the Autocrateia, but also supposed a state of the body and diseases, that admitted of remedies, which, under the power and direction of the soul, acted upon the organization and matter of the body, so as to cure its diseases. Upon this footing, the Stahlian pathology turned entirely upon Plethora and Cacochymy. It was with respect to the former that they especially applied their doctrine of the Autocrateia in a very fanatical manner; and, with respect to the latter, they have been involved in a humoral pathology as much as the systematic physicians who had gone before them, and with a theory so incorrect as not to merit now the smallest attention. After all, I ought not to dismiss the consideration of the Stahlian system, without remarking, that as the followers of this system were very intent upon observing the method of nature, so they were very attentive in observing the phenomena of diseases, and have given us in their writings many facts not to be found elsewhere.

While the doctrines of Stahl were prevailing in the university of Halle, Dr Hoffman, a professor in the same university, proposed a system that was very different. He received into his system a great deal of the mechanical, Cartesian, and chemical doctrines of the systems which had appeared before: but, with respect to these, it is of no consequence to observe in what manner he modified the doctrines

of his predecessors, as his improvements in these respects were nowise considerable, and no part of them now remain: and the real value of his works, beyond what I am just now going to mention, rests entirely on the many facts they contain. The merit of Dr Hoffman and of his work is, that he made, or rather suggested, an addition to the system, which highly deserves our attention. Of this I cannot give a clearer account than by giving it in the author's own words. In his Medicina Rationalis Systematica, tom. iii. § 1, chap. 4, he has given his Genealogia morborum ex turbato solidorum et fluidorum mechanismo; and in the 46th and last paragraph of this chapter, he sums up his doctrine in the following words: "Ex hisce autem omnibus uberius hactenus excus-" sis, perquam dilucide apparere arbitror, quod solus spas-" MUS et simplex ATONIA, æquabilem, liberum, ac propor-"tionatum sanguinis omnisque generis fluidorum motum, "quibus excretionum successus et integritas functionum ani-" mi et corporis proxime nititur, turbando ac pervertendo, "universam vitalem œconomiam subruant ac destruant; at-" que hinc universa pathologia longe rectius atque facilius "EX VITIO MOTUUM MICROCOSMICORUM IN SOLIDIS *, quam "EX VARIIS AFFECTIONIBUS VITIOSORUM HUMORUM, deduci "atque explicari possit, adeoque omnis generis ægritudines "internæ, ad PRÆTERNATURALES GENERIS NERVOSI AFFEC-"TIONES sint referendæ. Etenim læsis quocunque modo, "vel nervis per corpus discurrentibus, vel membranosis "quibusvis nervosis partibus, illico motuum anomaliæ, mo-" do leviores, modo graviores, subsequentur. Deinde, at-" tenta observatio docet, motûs quosvis morbosos principa-"liter sedem figere et tyrannidem exercere in nervosis cor-

^{*} From their attention to the functions of the solids, in preference to those of the fluids, the followers of Hoffman, Cullen and Barthez are often known by the general name of Solidists.

" poris partibus, cujus generis præter omnes canales, qui " systaltico et diastaltico motu pollentes, contentos succos " tradunt, universum nimirum intestinorum et ventriculi ab " œsophago ad anum canalem, totum systema vasorum arte-" riosorum, ductuum biliariorum, salivalium, urinariorum et " subcutaneorum, sunt quoque membranæ nerveo-musculares " cerebri et medullæ spinalis, præsertlm hæc, quæ dura ma-" ter vocatur, organis sensoriis obductæ, nec non tunicæ illæ " ac ligamenta, quæ ossa cingunt artûsque firmant. Nam " nullus dolor, nulla inflammatio, nullus spasmus, nulla mo-" tûs et sensûs impotentia, nulla febris aut humoris ullius ex-" cretio, accidit, in qua non hæ partes patiantur. Porro " etiam omnes quæmorbos gignunt causæ, operationem suam " potissimum perficiunt in partes motu et sensu præditas, et " canales ex his coagmentatos, eorum motum, et cum hoc "fluidorum cursum, pervertendo; ita tamen, ut sicuti variæ " indolis sunt, sic etiam varie in nerveas partes agant, iisdem-" que noxam affricent. Demum omnia quoque eximiæ vir-"tutis medicamenta, non tam in partes fluidas, earum cra-" sin ac intemperiem corrigendo, quam potius in solidas et " nervosas, earundem motûs alterando ac moderando, suam " edunt operationem: De quibus tamen omnibus, in vulgari " usque eo receptâ morborum doctrinâ, altum est silentium."

It is true, that Dr Willis had laid a foundation for this doctrine, in his Pathologia Cerebri et Nervorum; and Baglivi had proposed a system of this kind in his Specimen de fibrâ motrici et morbosa. But, in these writers, it was either not extensively applied to diseases, or was still so involved in many physiological errors, that they had attracted little attention; and Dr Hoffman was the first who gave any tolerably simple and clear system on the subject, or pointed out any extensive application of it to the explanation of diseases.

There can be no sort of doubt that the phenomena of the animal economy in health and in sickness can only be explained by considering the state and affections of the primary mo-

ving powers in it. It is to me surprising, that physicians were so long of perceiving this, and I think we are therefore particularly indebted to Dr Hoffman, for putting us into the proper train of investigation; and it every day appears, that physicians perceive the necessity of entering more and more into this inquiry. It was this, I think, which engaged Dr Kaaw Boerhaave to publish his work entitled Impetum faciens; as well as Dr Gaubius to give the pathology of the Solidum vivum. Even the Baron Van Swieten has, upon the same view, thought it necessary, in at least one particular, to make a very considerable change in the doctrine of his master, as he has done in his commentary upon the 755th aphorism. Dr Haller has advanced this part of science very much by his experiments on irritability and sensibility. In these, and in many other instances, particularly in the writings of Mr Barthez of Montpelier, of some progress in the study of the affections of the nervous system, we must perceive how much we are indebted to Dr Hoffman for his so properly beginning it. The subject, however, is difficult: the laws of the nervous system, in the various circumstances of the animal economy, are by no means ascertained; and, from want of attention and observation with the view to a system on this subject, the business appears to many as an inexplicable mystery. There is no wonder, therefore, that on such a difficult subject, Dr Hoffman's system was imperfect and incorrect, and has had less influence on the writings and practice of physicians since his time than might have been expected. He himself has not applied his fundamental doctrine so extensively as he might have done; and he has everywhere intermixed an humoral pathology, as incorrect and hypothetical as any other. Though he differed from his colleague Dr Stahl, in the fundamental doctrines of his system, it is but too evident that he was very much infected with the Stahlian doctrines of Plethora and Cacochymy, as may be observed throughout the whole course of his work; and particularly in his chapter

De morborum generatione ex nimià sanguinis quantitate et hu-

morum impuritate.

But it is needless for me to dwell any longer upon the system of Hoffman; and I am next to offer some remarks on the system of Dr Boerhaave, the contemporary of both the other systematics, and who, over all Europe, and especially in this part of the world, gained higher reputation than either of the others.

Dr Boerhaave was a man of general erudition; and, in applying to medicine, he had carefully studied the auxiliary branches of anatomy, chemistry, and botany, so that he excelled in each. In forming a system of physic, he seems to have studied diligently all the several writings of both ancient and modern physicians; and, without prejudice in favour of any former systems, he endeavoured to be a candid and genuine eclectic. Possessed of an excellent, systematic genius, he gave a system superior to any that had ever before appeared. As in the great extent, and seemingly perfect consistency, of system, he appeared to improve and refine upon every thing that had before been offered, and as in his lectures he explained his doctrines with great clearness and elegance, he soon acquired a very high reputation, and his system was more generally received than any former had been since the time of Galen. Whoever will consider the merits of Dr Boerhaave, and can compare his system with that of former writers, must acknowledge that he was very justly esteemed, and gave a system which was at that time deservedly valued.

But, in the progress of an inquisitive and industrious age, it was not to be expected that any system should last so long as Boerhaave's has done. The elaborate commentary of Van Swieten on Boerhaave's system of practice has been only finished a few years ago; and though this commentator has added many facts, and made some corrections, he has not, except in the particular mentioned above, made any improvement in the general system. It is even surprising, that

Boerhaave himself, though he lived near forty years after he had first formed his system, had hardly, in all that time, made any corrections of it, or additions to it: the following is the most remarkable. In aphorism 755, the words forte et nervosi *, tam cerebri quam cerebelli, cordi destinati inertiâ, did not appear in any edition before the fourth; and what a difference of system this points at, every physician must perceive.

When I first applied to the study of physic, I learned only the system of Boerhaave; and even when I came to take a professor's chair in this university, I found that system here in its entire and full force; and as I believe it still subsists in credit elsewhere, and that no other system of reputation has been yet offered to the world, I think it necessary for me to point out particularly the imperfections and deficiencies of the Boerhaavian system, in order to shew the propriety and necessity of attempting a new one.

To execute this, however, so fully as I might, would lead me into a detail that can hardly be admitted of here; and I hope it is not necessary, as I think that every intelligent person, who has acquired any tolerable knowledge of the present state of our science, must, in many instances, perceive its imperfections. I shall, therefore, touch only upon the great lines of this system; and from the remarks I am to offer, trust that both the mistakes and deficiencies which run through the whole of his works will appear.

Dr Boerhaave's treatise of the diseases of the simple solids, has the appearance of being very clear and consistent, and was certainly considered by him as a fundamental doctrine; but, in my apprehension, it is neither correct nor extensively applicable. Not to mention the useless, and perhaps erroneous, notion of the composition of earth and gluten; nor his mistake concerning the structure of compound mem-

[·] Scil. liquidi.

branes; nor his inattention to the state of the cellular texture; all of them circumstances which render his doctrine imperfect; I shall insist only upon the whole being very little applicable to the explaining the phenomena of health or sickness. The laxity or rigidity of the simple solid does indeed take place at the different periods of life, and may, perhaps, upon other occasions, occur as the cause of disease; but I presume, that the state of the simple solid is, upon few occasions, either changeable, or actually changed; and that, in ninety-nine cases of an hundred, the phenomena attributed to such a change do truly depend on the state of the solidum vivum; a circumstance which Dr Boerhaave has hardly taken notice of in any part of his works. How much this shews the deficiency and imperfection of his system, I need not explain. The learned work of Dr Gaubius, above referred to, as well as many other treatises of late authors, point out sufficiently the defects and imperfections of Boerhaave on this subject.

After Dr Boerhaave has considered the diseases of the solids, he, in the next place, attempts to explain the more simple diseases of the fluids; and there, indeed, he delivers a more correct doctrine of acid and alkali than had been given before: but, after all, he has done it very imperfectly. We have, indeed, since his time, acquired more knowledge upon the subject of digestion; and so much as to know, that a great deal more is yet necessary to enable us to understand in what manner the animal fluids are formed from the aliments taken in. And although Dr Boerhaave has fallen into no considerable error with respect to a morbid acidity in the stomach, he could not possibly be complete upon that subject; and his notion of the effects of acidity in the mass of blood seems to have been entirely mistaken, and is indeed not consistent with what he himself has delivered elsewhere.

His doctrine of alkali is somewhat better founded, but is probably carried too far; and the state of alkalescency and putrefaction, as well as all the other changes which can take place in the condition of animal fluids, are particulars yet involved in great obscurity, and are therefore still subjects of dispute.

There is another particular, in which Boerhaave's doctrine concerning the fluids appears to me imperfect and unsatisfactory; and that is, in his doctrine de Glutinoso spontaneo. The causes which he has assigned for it are by no means probable; and the actual existence of it is seldom to be proved. Some of the proofs adduced for the existence of the phlegma calidum are manifestly founded on a mistake with respect to what has been called the inflammatory crust, (see Van Swieten's Commentary, p. 96); and the many examples given by Boerhaave, of a glutinosum appearing in the human body (aph.75), are all of them nothing more than instances of collections or concretions found out of the course of the circulation.

If, then, we consider the imperfection of Dr Boerhaave's doctrine with respect to the state and various condition of the animal fluids; and if, at the same time, we reflect how frequently he and his followers have employed the supposition of an acrimony or lentor of the fluids, as causes of disease, and for directing the practice; we must, as I apprehend, be satisfied, that his system is not only deficient and incomplete, but fallacious and apt to mislead. Although it cannot be denied, that the fluids of the human body suffer various morbid changes; and that, upon these, diseases may primarily depend; yet I must beg leave to maintain, that the nature of these changes is seldom understood, and more seldom still is it known when they have taken place; that our reasonings concerning them have been, for the most part, purely hypothetical; have therefore contributed nothing to improve, and have often misled, the practice of physic. In this particularly, they have been hurtful, that they have withdrawn our attention from, and prevented our study of, the motions of the animal system, upon the state of which the phenomena of diseases do more certainly and generally depend. Whoever, then, shall consider the almost total neglect of the state of the moving powers of the animal body, and the prevalence of an hypothetical humoral pathology, so conspicuous in every part of the Boerhaavian system, must be convinced of its very great defects, and perceive the necessity of attempting one more correct.

After giving this general view, it is not requisite to enter into particulars: but I believe there are very few pages of his aphorisms in which there does not occur some error or defect; although, perhaps, not to be imputed to the fault of Boerhaave so much as to this, that since his time a great collection of new facts has been acquired by observation and experiment. This, indeed, affords the best and most solid reason for attempting a new system; for, when many new facts have been acquired, it becomes requisite that these should be incorporated into a system, whereby not only particular subjects may be improved, but the whole may be rendered more complete, consistent, and useful. Every system, indeed, must be valuable in proportion to the number of facts that it embraces and comprehends; and Mons. Quesney could not pay a higher compliment to the system of Boerhaave, than by saying that it exhibited La Médecine collective.

But here it will, perhaps, be suggested to me, that the only useful work on the subject of physic, is the making a collection of all the facts that relate to the art, and therefore of all that experience has taught us with respect to the cure of diseases. I agree entirely in the opinion; but doubt if it can ever be properly accomplished, without aiming at some system of principles, by a proper induction and generalization of facts: at least I am persuaded, that it can be done not only very safely, but most usefully in this way. This, however, must be determined by a trial. I know that the late Mr Lieutaud has attempted a work on the plan of collecting facts, without any reasoning concerning their causes: and while I

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am endeavouring to give some account of the present state of physic, I cannot dismiss the subject without offering some remarks upon the promising Synopsis universæ medicinæ, composed by the first physician of a learned and ingenious nation.

In this work there are many facts and much observation from the author's own experience, which may be useful to those who have otherwise acquired some knowledge and discernment; but, throughout the whole work, there is such total want of method, arrangement, system, or decision, that, in my humble opinion, it can be of little use, and may prove very perplexing to those who are yet to learn. The distinction of the genera of diseases, the distinction of the species of each, and often even that of the varieties, I hold to be a necessary foundation of every plan of physic, whether dogmatical or empirical. But very little of this distinction is to be found in the work of Mr Lieutaud; and in his preface he tells us, that he meant to neglect such arguta sedulitas. And, indeed, his method of managing his subject must certainly interrupt and retard all methodical nosology. His arrangement of diseases is according to no affinity, but that of the slightest and uninstructive kind, the place of the body which they happen to affect. His Generalia et incertæ sedis, have hardly any connection at all; the titles Rheumatismus, Hypochondriasis, Hydrops, follow one another. When he does attempt any general doctrine, it is not till long after he has treated of the widely scattered particulars. Under each particular title which he assumes, he has endeavoured to enumerate the whole of the symptoms that ever appeared in a disease under that title; and this without aiming at any distinction between the essential and accidental symptoms, or marking the several combinations under which these symptoms do for the most part steadily appear. From the concurrence of accidental symptoms, the variety of the same disease is frequently considerable,—a circumstance necessarily perplexing and distracting to young

practitioners; but it seems strange to me, that an experience of thirty years, in considerable practice, could do nothing to relieve them.

Mr Lieutaud has at the same time increased the confusion that must arise from this want of distinction, by his considering as primary diseases, what appear to me to be only the symptoms, effects, and sequels of other diseases. Of this I think the Æstus morbosus, Virium exolutio, Dolores, Stagnatio sanguinis, Purulentia, Tremor, Pervigilium, Raucedo, Suffocatio, Vomica, Empyema, Singultus, Vomitus, Dolor stomachi, Tenesmus, all treated of under separate titles, are examples. A general Symptomatologia may be a very useful work, with a view to a system of pathology; but, with a view to practice without any System, it must have bad effects, as leading only to a palliative practice, and diverting from the proper efforts towards obtaining a radical cure. Mr Lieutaud, indeed, has endeavoured to exhibit the symptoms above mentioned as so many primary diseases: but he has seldom succeeded in this; and, in delivering the practice, he commonly finds it necessary to consider them as symptoms, and that not without some theory, implied or expressed, with respect to their proximate causes. His title of Dolores may be taken as an example of this; and from which it may be readily perceived how far such treatises can be really useful.

In establishing a proper Pathology, there is nothing that has been of more service than the Dissection of morbid bodies. Mr Lieutaud has been much and most commendably employed in this way, and in his Synopsis he has endeavoured to communicate his knowledge on the subject; but, in my humble opinion, he has seldom done it in a manner that can be useful. In the same way that he has delivered the symptoms of diseases without any instructive arrangement, so, on the subject of the appearances after death, he has mentioned every morbid appearance that had ever been

observed after the disease of which he is then treating: but these appearances are strangely huddled together, without any notice taken of those which belong to one set of symptoms or to another; and, with regard to the whole, without any attempt to distinguish between the causes of diseases and the causes of death; although the want of such distinction is the well-known ground of fallacy upon this subject. I take for an example, the appearances mentioned as having been observed after dropsy. Here morbid appearances, found in every part of the body, in every cavity of it, and in every viscus contained in these cavities, are enumerated; but which of these morbid states are more frequent or more rare, and which had been more particularly connected with the different causes, or with the different state of symptoms previously recited, we are not informed, nor has he enabled us to discover. In short, the dissection of morbid bodies has been, and may be highly useful; but, in order to be so, it must be under a different management from what we find either in this Synopsis, or even in the Historia Anatomico-medica.

I cannot dismiss this subject without remarking, that the dissection of morbid bodies is chiefly valuable upon account of its leading us to discover the proximate causes of diseases; and the great and valuable work of the illustrious Morgagni is properly entitled De sedibus et CAUSIS. It may well seem surprising then, that Lieutaud should find the whole of proximate causes atrâ caligine mersas; and that he should never have thought of applying his dissections towards the ascertaining at least some of these.

But let me now proceed to consider the important part of every practical work, and of this Synopsis universæ medicinæ: that is, the method of curing diseases.

Here, again, upon the same plan as in giving the histories of disease, the method of cure is delivered by enumerating the whole of the remedies that have ever been employed in

a disease under the title prefixed; without assigning the species, or the circumstances to which the remedies, though of a very different and sometimes opposite nature, are peculiarly adapted. On the subject of Asthma, he very justly observes, that physicians have been to blame in confounding under this title almost all the species of Dyspnæa; and he himself very properly considers Asthma as a disease distinct from all the other cases of Dyspnæa. Still, however, he considers Asthma as of many different species, arising from many different causes, which, till we understand better, we cannot attempt to remove. Notwithstanding of all this, he proceeds to deliver a very general cure. Parum abest, says he, quin specifici titulo gaudeant pectoralia, vulneraria, et incidentia! But from such language I receive no clear idea; nor can I obtain any clear direction from the enumeration of his medicines. Bacca juniperi, gummi tragacanthum vel ammoniacum, sapo, aqua picea, terebinthina, &c. quæ tamen haud indiscriminatim sunt usurpanda, sed pro re natâ, delectu opus est. Very justly indeed, delectu opus est; but here, as in many other instances, he gives us no sort of assistance.

From his endeavours, though not always successful, to neglect all system, his practice is generally delivered in a very indecisive manner; or, what has the same effect, in a way so conditional, as will render it always difficult, and often impossible, for a young practitioner to follow him. Let us take, for example, his cure of Dropsy. "The cure may be begun by blood-letting in certain conditions; but in others it cannot be employed without danger. It gives relief in difficult breathing; but, after it is practised, the symptoms are aggravated, and rendered more obstinate. It is not to be concealed, that some persons have been cured by repeated blood-lettings, or spontaneous hæmorrhagies; but it is at the same time known, that such a remedy inopportunely employed, has in many instances hastened on the fatal event."

In the same manner he treats of yomiting, purging, sweat-

ing, and the use of mineral waters; but I must confess that he has no where removed any of my doubts or difficulties, and indeed he has sometimes increased them. He says, that hepatics or aperients, such as the lingua cervina, herbæ capillares, &c. deserve commendation, but that, when the disease has arisen to a certain degree, they have been, for the most part, found to be useless. He observes, that the powder of toads given in wine, to the quantity of a scruple or more, has succeeded with severals.

Such are commonly the methods of cure delivered by Mr Lieutaud, longiori et forte felicissimâ praxi edoctus.

It would be tedious to enter further into that detail, which a criticism of this immethodical and uninstructive work might lead me into; but if the bounds proper for this preface did not prevent me, I would particularly show that the work is far from being free from those reasonings which the author pretends to avoid, and would even affect to despise. He still holds the doctrines of the concoction and critical evacuation of morbific matter; doctrines depending upon subtile theories, and which, in my opinion, can in nowise be ascertained as matters of fact. Mr Lieutaud likewise is still very much upon the old plan of following nature, and therefore gives often what I consider as a feeble and inert practice. The humectantia, diluentia, demulcentia, et temperantia, are with him very universal remedies, and often those which alone are to be employed.

The mention of these medicines might lead me to take notice of Mr Lieutaud's second volume, in which, ab insulsa remediorum farragine alienus, he promises a great reformation upon the subject; but this falls so far short of the idea of British physicians, that I need not make any remarks upon it. With respect to his list of simples, or Emporetica, as he is pleased to term them, an English apothecary would smile at it; and with respect to his Officinalia, I believe they are to be found no where but in the Codex Medicamentarius of

Paris; and in his Magistralia, his doses are generally such as the most timid practitioner of this country would hardly descend to, and such as none of our practitioners of experience would depend upon. In short, the whole of the work, both with respect to the theories with which it abounds, and to the facts which it gives, will not, in my apprehension, bear any serious criticism. But I must conclude, and shall only say further, that such as I have represented it, is this work, executed by a man of the first rank in the profession. It is indeed for that reason I have chosen it as the example of a work, upon the plan of giving facts only, and of avoiding the study or even the notice of the proximate causes of diseases; and with what advantage such a plan is pursued, I shall leave my readers to consider.

In the following treatise I have followed a different course. I have endeavoured to collect the facts relative to the diseases of the human body, as fully as the nature of the work and the bounds necessarily prescribed to it would admit: But I have not been satisfied with giving the facts, without endeavouring to apply them to the investigation of proximate causes, and upon these to establish a more scientific and decided method of cure. In aiming at this, I flatter myself that I have avoided hypotheses, and what have been called theories. I have, indeed, endeavoured to establish many general doctrines, both physiological and pathological; but I trust that these are only a generalization of facts, or conclusions from a cautious and full induction: And if any one shall refuse to admit, or directly shall oppose my general doctrines, he must do it by shewing that I have been deficient or mistaken in assuming and applying facts. I have myself been jealous of my being sometimes imperfect in these respects; but I have generally endeavoured to obviate the consequences of this, by proving, that the proximate causes which I have assigned, are true in fact, as well as deductions from any reasoning that I may seem to have employed.

Further, to obviate any dangerous fallacy in proposing a method of cure, I have always been anxious to suggest that which, to the best of my judgment, appeared to be the method approved of by experience, as much as it was the consequence of system.

Upon this general plan I have endeavoured to form a system of physic that should comprehend the whole of the facts relating to the science, and that will, I hope, collect and arrange them in better order than has been done before, as well as point out in particular those which are still wanting to establish general principles. This which I have attempted, may, like other systems, hereafter suffer a change; but I am confident that we are at present in a better train of investigation than physicians were in before the time of Dr Hoffman. The affections of the motions and moving powers of the animal economy must certainly be the leading inquiry in considering the diseases of the human body. The inquiry may be difficult; but it must be attempted, or the subject must be deserted altogether. I have, therefore, assumed the general principles of Hoffman, as laid down in the passage which I have quoted above; and if I have rendered them more correct and more extensive in their application, and, more particularly, if I have avoided introducing the many hypothetical doctrines of the Humoral Pathology, which disfigured both his and all the other systems which have hitherto prevailed, I hope I shall be excused for attempting a system, which, upon the whole, may appear new.

EDINBURGH, Nov. 1783.

FIRST LINES

OF THE

PRACTICE OF PHYSIC.

INTRODUCTION.

- 1. In teaching the Practice of Physic, we endeavour to give instruction for discerning, distinguishing, preventing, and curing, diseases, as they occur in particular persons.
- 2. The art of discerning and distinguishing diseases may be best attained by an accurate and complete observation of their phenomena, as these occur in concourse and in succession, and, by constantly endeavouring to distinguish the peculiar and inseparable concurrence of symptoms, to establish a Methodical Nosology, or an arrangement of diseases according to their genera and species, founded upon observation alone, abstracted from all reasoning. Such an arrangement I have attempted in another work, to which, in the course of the present, I shall frequently refer.
- 3. The Prevention of diseases depends upon the know-ledge of their remote causes, which is partly delivered in the general Pathology, and partly to be delivered in this treatise.
- 4. The Cure of diseases is chiefly, and almost unavoidably founded in the knowledge of their proximate causes. This requires an acquaintance with the Institutions of Me-

dicine; that is, the knowledge of the structure, action, and functions of the human body; of the several changes which it may undergo; and of the several powers by which it can be changed. Our knowledge of these particulars, however, is still incomplete, is in many respects doubtful, and has been often involved in mistake and error. The doctrine, therefore, of proximate causes, founded upon that knowledge, must be frequently precarious and uncertain. It is however possible for a judicious physician to avoid what is vulgarly called theory, that is, all reasoning founded upon hypothesis, and thereby many of the errors which have formerly taken place in the Institutions of Medicine. It is possible also for a person who has an extensive knowledge of the facts relative to the animal economy in health and in sickness, by a cautious and complete induction, to establish many general principles which may guide his reasoning with safety; and while at the same time a physician admits, as a foundation of practice, those reasonings only which are simple, obvious, and certain, and for the most part admits as proximate causes those alone that are established as matters of fact rather than as deductions of reasoning, he may with great advantage establish a system of practice chiefly founded on the doctrine of proximate causes. But when this cannot be done with sufficient certainty, the judicious and prudent physician will have recourse to Experience alone; always, however, aware of the hitherto incomplete and fallacious state of Empiricism.

5. With a strict attention to these considerations in the whole of the following treatise, I proceed to treat of particular diseases in the order of my Methodical Nosology.

PART I.

OF PYREXIÆ, OR FEBRILE DISEASES.

CL. I. PYREXIA.

Character.---Post horrorem pulsus frequens, calor major, plures functiones læsæ, viribus præsertim artuum imminutis.

SYNOPSIS NOSOL.

- 6. Pyrexiæ, or febrile diseases, are distinguished by the following appearances: After beginning with some degree of cold shivering, they show some increase of heat, and an increased frequency of pulse, with the interruption and disorder of several functions, particularly some diminution of strength in the animal functions.
- 7. Of these Pyrexiæ I have formed a class, and have subdivided it into the five orders of Fevers, Inflammations, Eruptions, Hæmorrhagies, and Fluxes. See Synopsis Nosologiæ Methodicæ, edit. 3. 1780.

BOOK I.

OF FEVERS.

ORD. I. FEBRES.

 $P_{ragressis}$ languore, lassitudine, et aliis debilitatis signis, pyrexia, sine morbo locali primario.

- Sect. I. Intermittentes.—Febres, miasmate paludum orta, paroxysmis pluribus, apyrexiâ, saltem remissione evidente interpositâ, cum exacerbatione notabili, et plerumque cum horrore redeuntibus, constantes: Paroxysmo quovis die unico tantum.
- Genus I. Tertiana.—Paroxysmi similes intervallo quadraginta octo circiter horarum: Accessionibus meridianis.
- G. II. QUARTANA.—Paroxysmi similes intervallo septuaginta duarum circiter horarum: Accessionibus pomeridianis.
- G. III. QUOTIDIANA.—Paroxysmi similes intervallo viginti quatuor circiter horarum: Paroxysmis matutinis.
- Sect. II. CONTINUE.---Febres, sine intermissione, nec miasmate paludum ortæ, sed cum remissionibus et exacerbationibus, parum licet notabilibus, perstantes: Paroxysmis quovis die binis.
- G. IV. Synocha.--- Calor plurimum auctus; pulsus frequens, validus, et durus; urina rubra; sensorii functiones parum turbatæ.
- G. V. Typhus.---Morbus contagiosus; calor parum auctus; pulsus parvus, debilis, plerumque frequens; urina parum mutata; sensorii functiones plurimum turbatæ; vires multum imminutæ.
- G. VI. Synochus.---Morbus contagiosus. Febris ex synochâ et typho composita, initio synocha, progressu et versus finem typhus.

HECTICA.---Febris quotidie revertens; accessionibus meridianis et vespertinis; remissione, rarius apyrexiâ, matutinâ; plerumque sudoribus nocturnis, et urinâ sedimentum furfuraceo-lateritium deponente.

Synopsis Nosol.

CHAP. I.

OF THE PHENOMENA OF FEVERS.

8. Those diseases are more strictly called Fevers, which have the general symptoms of Pyrexia, without having along

with them any topical affection that is essential and primary, such as the other orders of the Pyrexiæ always have.

- 9. Fevers, as differing in the number and variety of their symptoms, have been very properly considered as of distinct genera and species. But we suppose that there are certain circumstances in common to all the diseases comprehended under this order, which are therefore those essentially necessary to and properly constituting the nature of fever. It is our business especially, and in the first place, to investigate these; and I expect to find them as they occur in the paroxysm or fit of an intermittent fever, as this is most commonly formed.
- 10. The phenomena to be observed in such a paroxysm are the following: The person is affected, first, with a languor, or sense of debility, a sluggishness in motion, and some uneasiness in exerting it, with frequent yawning and stretching. At the same time the face and extremities become pale, the features shrink, the bulk of every external part is diminished, and the skin, over the whole body, appears constricted, as if cold had been applied to it. At the coming on of these symptoms, some coldness of the extremities, though little taken notice of by the patient, may be perceived by another person. At length the patient himself feels a sensation of cold, commonly first in his back, but from thence passing over the whole body; and now his skin feels warm to another person. The patient's sense of cold increasing, produces a tremor in all his limbs, with frequent succussions or rigours of the trunk of the body. When this sense of cold, and its effects, have continued for some time, they become less violent, and are alternated with warm flushings. By degrees the cold goes off entirely, and a heat greater than natural prevails, and continues over the whole body. With this heat the colour of the skin returns, and a preternatural redness appears, especially in the face. Whilst the heat and redness come on, the skin

The features of the face, and other parts of the body, recover their usual size, and become even more turgid. When the heat, redness, and turgescence have increased and continued for some time, a moisture appears upon the forehead, and by degrees becomes a sweat, which gradually extends downwards over the whole body. As this sweat continues to flow, the heat of the body abates; the sweat, after continuing for some time, gradually ceases; the body returns to its usual temperature, and most of the functions are restored to their ordinary state.

11. This series of appearances gives occasion to divide the paroxysm into three different stages, which are called the Cold, the Hot, and the Sweating stages, or Fits.

In the course of these, considerable changes happen in the state of several other functions, which are now to be mentioned.

- 12. Upon the first approach of languor, the pulse becomes sometimes slower, and always weaker than before. As the sense of cold comes on, the pulse becomes smaller, very frequent, and often irregular. As the cold abates, and the heat comes on, the pulse becomes more regular, hard, and full, and in these respects increases till the sweat breaks out. As the sweat flows, the pulse becomes softer and less frequent, till, the sweat ceasing altogether, it returns to its usual state.
- 13. The respiration also suffers some changes. During the cold stage, the respiration is small, frequent, and anxious, and is sometimes attended with a cough. As the hot stage comes on, the respiration becomes fuller and more free, but continues still frequent and anxious, till the flowing of the sweat relieves the anxiety, and renders the breathing less frequent and more free. With the ceasing of the sweat, the breathing returns to its ordinary state.

14. The natural functions also suffer a change. Upon

the approach of the cold stage, the appetite for food ceases, and does not return till the paroxysm be over, or the sweat has flowed for some time. Generally, during the whole of the paroxysm, there is not only a want of appetite, but an aversion from all solid and especially animal food. As the cold stage advances, there frequently come on a sickness and nausea, which often increase to a vomiting of a matter that is for the most part bilious. This vomiting commonly puts an end to the cold stage, and brings on the hot. As the hot stage advances, the nausea and vomiting abate; and when the sweat breaks out, they generally cease altogether.

15. A considerable degree of thirst is commonly felt during the whole course of the paroxysm. During the cold stage, the thirst seems to arise from the dryness and clamminess of the mouth and fauces; but during the hot stage, from the heat which then prevails over the whole body: and as the sweat flows, the mouth becomes moister, and the thirst, together with the heat, gradually abates.

16. In the course of a paroxysm, there is often a considerable change in the state of the secretions. The circumstances just now mentioned show it in the secretion of the saliva and mucus of the mouth; and it is still more remarkable with respect to the urine. During the cold stage, the urine is almost colourless, and without cloud or sediment. In the hot stage, it becomes high-coloured, but is still without sediment. After the sweat has flowed freely, the urine deposites a sediment, commonly lateritious, and continues to do so for some time after the paroxysm is over.

17. Excepting in certain uncommon cases which are attended throughout with a diarrhœa, stools seldom occur till towards the end of a paroxysm, when commonly a stool happens, and which is generally of a loose kind.

18. Analogous to these changes in the state of the secretions, it frequently happens, that tumours subsisting on the surface of the body suffer, during the cold stage of fevers,

a sudden and considerable detumescence; but generally, though not always, the tumors return to their former size during the sweating stage. In like manner, ulcers are sometimes dried up during the cold stage, and return again to discharge matter during the sweating stage, or after the paroxysm is over.

19. Certain changes appear also in sensation and thought. During the cold stage, the sensibility is often greatly impaired; but when the hot stage is formed, the sensibility is

recovered, and often considerably increased.

20. With respect to the intellectual functions, when the cold stage comes on, attention and recollection become difficult, and continue more or less so during the whole paroxysm. Hence some confusion of thought takes place, and often arises to a delirium, which sometimes comes on at the beginning of the cold stage, but more frequently not till the hot stage be formed.

21. It belongs also to this place to remark, that the cold stage sometimes comes on with a drowsiness and stupor, which often increases to a degree that may be called coma-

tose or apoplectic.

22. We have still to add, that sometimes early in the cold stage a headach comes on, but which more commonly is not felt till the hot stage be formed, and then is usually attended with a throbbing of the temples. The headach continues till the sweat breaks out; but as this flows more freely, that gradually goes off. At the same time with the headach, there are commonly pains of the back and some of the great joints; and these pains have the same course with the headach.

23. These are nearly the whole, and are at least the chief of the phenomena which more constantly appear in the paroxysm of an intermittent fever; and we have pointed out their ordinary concourse and succession. With respect to the whole of them, however, it is to be observed, that in dif-

ferent cases the several phenomena are in different degrees; that the series of them is more or less complete; and that the several parts or stages in the time they occupy are in a different proportion to one another.

24. It is very seldom that a fever consists of a single paroxysm, such as we have now described; and it more generally happens, after a certain length of time has elapsed from the ceasing of the paroxysm, that the same series of phenomena again arises, and observes the same course as before; and these states of Fever and Apprexia often continue to alternate with one another for many times. In such cases, the length of time from the end of one paroxysm to the beginning of another, is called an INTERMISSION; and the length of time from the beginning of one paroxysm to the beginning of another next succeeding, is called an INTERVAL.

25. When the disease consists of a number of paroxysms, it is generally to be observed, that the intervals between them are nearly equal; but these intervals are of different lengths in different cases. The most usual interval is that of forty-eight hours, which is named the Tertian period. The next most common is that of seventy-two hours, and is named the QUARTAN period. Some other intervals also are observed, particularly one of twenty-four hours, named therefore the Quotidian; and the appearance of this is pretty frequent. But all other intervals, longer than that of the quartan, are extremely rare, and probably are only irregularities of the tertian or quartan periods.

26. The paroxysms of pure intermittent fevers are always finished in less than twenty-four hours; and though it happens that there are fevers which consist of repeated paroxysins, without any entire intermission between them; yet in such cases it is to be observed, that though the hot and sweating stages of the paroxysm do not entirely cease before the twenty-four hours from their beginning have expired,

they suffer, however, before that time, a considerable abatement or Remission of their violence; and, at the return of the quotidian period, a paroxysm is in some shape renewed, which runs the same course as before. This constitutes what is called a Remittent Fever.

- 27. When in these remittents the remission is considerable, and the return of a new paroxysm is distinctly marked by the symptoms of a cold stage at the beginning of it, such fevers retain strictly the appellation of Remittents. But when it happens, as it does in certain cases, that the remission is not considerable, is perhaps without sweat, and that the returning paroxysm is not marked by the most usual symptoms of a cold stage, but chiefly by the aggravation or Exacerbation of a hot stage, the disease is called a Continued Fever.
- 28. In some cases of continued fever, the remissions and exacerbations are so inconsiderable as not to be easily observed or distinguished; and this has led physicians to imagine that there is a species of fever subsisting for several days together, and seemingly consisting of one paroxysm only. This they have called a Continent Fever; but, in a long course of practice, I have not had an opportunity of observing such a fever.

29. It is however to be observed here, that the fevers of a continued form are to be distinguished from one another; and that, while some of a very continued form do still belong to the section of intermittents, there are others which, though still consisting of separate and repeated paroxysms, yet, as different by their causes and circumstances from intermittents, are to be distinguished from the whole of these, and are more strictly to be called and considered as Continued. Such are most of those which have been commonly supposed to be Continent; and those which by most writers have been simply named Continued; and which term

I have employed as the title of a section, to be distinguished from that of Intermittent.

I shall here add the marks by which, in practice, these different continued fevers may be distinguished from one another.

Those fevers of a continued form, which, however, still belong to the section of Intermittents, may be distinguished by their having passed from an intermittent or remittent form to that of a continued; by their shewing some tendency to become intermittent, or at least remittent; by their being known to have been occasioned by marsh miasmata; and, for the most part, by their having but one paroxysm, or one exacerbation and remission, in the course of twenty-four hours.

On the other hand, Continued Fevers, to be more strictly so called, may be distinguished by their showing little tendency to become intermittent or remittent in any part of their course, and especially after the first week of their continuance; by their being occasioned by human contagion, at least by other causes than the marsh miasmata; and by their having pretty constantly an exacerbation and remission twice in the course of every twenty-four hours. In both cases, the knowledge of the nature of the epidemic for the time prevailing, may have a great share in determining the nature of the particular fever.

- 30. With respect to the form, or Type of fevers, this further may be observed, That the quartan, while it has the longest interval, has, at the same time, the longest and most violent cold stage; but, upon the whole, the shortest paroxysm: That the tertian having a shorter interval than the quartan, has, at the same time, a shorter and less violent cold stage, but a longer paroxysm: And, lastly, that the quotidian, with the shortest interval, has the least of a cold stage, but the longest paroxysm.
 - 31. The type of fevers is sometimes changed in their

course. When this happens, it is generally in the following manner: Both tertians and quartans change into quotidians, quotidians into remittents, and these last become often of the most continued kind. In all these cases, the fever has its paroxysms protracted longer than usual, before it changes into a type of more frequent repetition.

32. From all this a presumption arises, that every fever consists of repeated paroxysms, differing from others chiefly in the circumstances and repetition of the paroxysms, and therefore that it was allowable for us to take the paroxysm of a pure intermittent as an example and model of

the whole.

CHAP. II.

OF THE PROXIMATE CAUSE OF FEVER.

33. The proximate cause of fever seems hitherto to have eluded the research of physicians, and I shall not pretend to ascertain it in a manner that may remove every difficulty, but I shall endeavour to make an approach towards it, and such as I hope may be of use in conducting the practice in this disease; while at the same time I hope to avoid several errors which have formerly prevailed on this subject.

34. As the hot stage of fever is so constantly preceded by a cold stage, we presume that the latter is the cause of the former, and therefore that the cause of the cold stage is the cause of all that follows in the course of the paroxysm.

See Boerh. Aph. 756.

35. To discover the cause of the cold stage of fevers, we

may observe, that it is always preceded by strong marks of a general debility prevailing in the system. The smallness and weakness of the pulse, the paleness and coldness of the extreme parts, with the shrinking of the whole body, sufficiently show that the action of the heart and larger arteries is, for the time, extremely weakened. Together with this, the languor, inactivity, and debility of the animal motions, the imperfect sensations, the feeling of cold while the body is truly warm, and some other symptoms, all show that the energy of the brain is, on this occasion, greatly weakened; and I presume, that as the weakness of the action of the heart can hardly be imputed to any other cause, this weakness also is a proof of the diminished energy of the brain.

- 36. I shall hereafter endeavour to show, that the most noted of the remote causes of fever, as contagion, miasmata, cold, and fear, are of a sedative nature, and therefore render it probable that a debility is induced. Likewise, when the paroxysms of a fever have ceased to be repeated, they may again be renewed, and are most commonly renewed by the application of debilitating powers. And further, the debility which subsists in the animal motions and other functions through the whole of the fever, renders it pretty certain that sedative or debilitating powers have been applied to the body.
- 37. It is therefore evident, that there are three states which always take place in fever; a state of debility, a state of cold, and a state of heat; and as these three states regularly and constantly succeed each other in the order we have mentioned them, it is presumed that they are in the series of cause and effect with respect to one another. This we hold as a matter of fact, even although we should not be able to explain in what manner, or by what mechanical means, these states severally produce each other.
- 38. How the state of debility produces some of the symptoms of the cold stage, may perhaps be readily explained;

but how it produces all of them, I cannot explain otherwise than by referring the matter to a general law of the animal economy, whereby it happens, that powers which have a tendency to hurt and destroy the system, often excite such motions as are suited to obviate the effects of the noxious power. This is the VIS MEDICATRIX NATURÆ, so famous in the schools of physic; and it seems probable, that many of the motions excited in fever are the effects of this power.

- which takes place in the hot stages of fevers, is to be considered as an effort of the vis medicatrix naturæ, has been long a common opinion among physicians, and I am disposed to assert that some part of the cold stage may be imputed to the same power. I judge so, because the cold stage appears to be universally a means of producing the hot; because cold, externally applied, has very often similar effects; and more certainly still, because it seems to be in proportion to the degree of tremor in the cold stage, that the hot stage proceeds more or less quickly to a termination of the paroxysm, and to a more complete solution and longer intermission. See 30.
 - 40. It is to be particularly observed, that, during the cold stage of fever, there seems to be a spasm induced every where on the extremities of the arteries, and more especially of those upon the surface of the body. This appears from the suppression of all excretions, and from the shrinking of the external parts; and although this may perhaps be imputed, in part, to the weaker action of the heart in propelling the blood into the extreme vessels; yet as these symptoms often continue after the action of the heart is restored, there is reason to believe, that a spasmodic constriction has taken place; that it subsists for some time, and supports the hot stage; for this stage ceases with the flowing of the sweat, and the return of other excretions, which are marks of the relaxation of vessels formerly constricted.

Hoffman, Med. Rat. System. tom. iv. p. 1. sect. 1. cap. 1. art. 4.

- 41. The idea of fever, then, may be, that a spasm of the extreme vessels, however induced, proves an irritation to the heart and arteries; and that this continues till the spasm is relaxed or overcome. There are many appearances which support this opinion; and there is little doubt that a spasm does take place, which proves an irritation to the heart, and therefore may be considered as a principal part in the proximate cause of fever. It will still, however, remain a question, what is the cause of this spasm; whether it be directly produced by the remote causes of fever, or if it be only a part of the operation of the vis medicatrix naturæ.
- 42. I am disposed to be of the latter opinion; because, in the first place, while it remains still certain that a debility lays the foundation of fever, it is not obvious in what manner the debility produces the spasm, and, what seems to be its effect, the increased action of the heart and arteries; and, secondly, because in almost all the cases in which an effort is made by the vis medicatrix naturæ, a cold fit, and a spasm of the extreme vessels, are almost always the beginning of such an effort. See Gaub. Pathol. Medicin. art. 750.
- 43. It is therefore presumed, that such a cold fit and spasm at the beginning of fever, is a part of the operation of the vis medicatrix; but, at the same time, it seems to me probable, that during the whole course of the fever, there is an atony subsisting in the extreme vessels, and that the relaxation of the spasm requires the restoring of the tone and action of these.
- 44. This it may be difficult to explain; but I think it may be ascertained as a fact, by the consideration of the symptoms which take place with respect to the functions of the stomach in fevers, such as the anorexia, nausea, and vomiting. (14.).

From many circumstances it is sufficiently certain, that there is a consent between the stomach and surface of the body; and in all cases of the consent of distant parts, it is presumed to be by the connection of the nervous system; and that the consent which appears between the sentient and moving fibres of the one part with those of the other, is such that a certain condition prevailing in the one part occasions a similar condition in the other.

In the case of the stomach and surface of the body, the consent particularly appears by the connection which is observed between the state of the perspiration and the state of the appetite in healthy persons; and if it may be presumed that the appetite depends upon the state of tone in the muscular fibres of the stomach, it will follow, that the connection of appetite and perspiration depends upon a consent between the muscular fibres of the stomach, and the muscular fibres of the extreme vessels, or of the organ of perspiration on the surface of the body.

It is further in proof of the connection between the appetite and perspiration, and, at the same time, of the circumstances on which it depends, that cold applied to the surface of the body, when it does not stop perspiration, but proves a stimulus to it, is always a powerful means of exciting appetite.

Having thus established the connection or consent mentioned, we argue, that as the symptoms of anorexia, nausea, and vomiting, in many cases, manifestly depend upon a state of debility or loss of tone in the muscular fibres of the stomach; so it may be presumed, that these symptoms, in the beginning of fever, depend upon an atony communicated to the muscular fibres of the stomach from the muscular fibres of the extreme vessels on the surface of the body.

That the debility of the stomach, which produces vomiting in the beginning of fevers, actually depends upon an atony of the extreme vessels on the surface of the body, appears particularly from a fact observed by Dr Sydenham.

In the attack of the plague, a vomiting happens, which prevents any medicine from remaining on the stomach; and Dr Sydenham tells us, that in such cases he could not overcome this vomiting but by external means applied to produce a sweat; that is, to excite the action of the vessels on the surface of the body.

The same connection between the state of the stomach, and that of the extreme vessels on the surface of the body, appears from this also, that the vomiting which so frequently happens in the cold stage of fevers, commonly ceases upon the coming on of the hot, and very certainly upon any sweat's coming out. (14.). It is indeed probable, that the vomiting in the cold stage of fevers is one of the means employed by nature for restoring the determination to the surface of the body; and it is a circumstance affording proof, both of this and of the general connection between the stomach and surface of the body, that emetics thrown into the stomach and operating there in the time of the cold stage, commonly put an end to it, and bring on the hot stage.

It also affords a proof of the same connection, that cold water taken into the stomach produces an increase of heat on the surface of the body, and is very often a convenient and effectual means of producing sweat.

From the whole we have now said on this subject, I think it is sufficiently probable that the symptoms of anorexia, nausea, and vomiting, depend upon, and are a proof of an atony subsisting in the extreme vessels on the surface of the body; and that this atony, therefore, now ascertained as a matter of fact, may be considered as a principal circumstance in the proximate cause of fever.

45. This atony we suppose to depend upon a diminution of the energy of the brain; and that this diminution takes place in fevers, we conclude, not only from the debility prevailing in so many of the functions of the body, mentioned above (35.), but particularly from symptoms which are pecu-

liar to the brain itself. Delirium is a frequent symptom of fever: and as from Physiology and Pathology we learn that this symptom commonly depends upon some inequality in the excitement of the brain or intellectual organ, we hence conclude, that, in fever, it denotes some diminution in the energy of the brain. Delirium, indeed, seems often to depend upon an increased impetus of the blood in the vessels of the brain, and therefore attends phrenitis. It frequently appears also in the hot stage of fevers, accompanied with a headach and throbbing of the temples. But as the impetus of the blood in the vessels of the head is often considerably increased by exercise, external heat, passions, and other causes, without occasioning any delirium; so, supposing that the same impetus, in the case of fever, produces delirium, the reason must be, that at the same time there is some cause which diminishes the energy of the brain, and prevents a free communication between the parts concerned in the intellectual functions. Upon the same principles also I suppose there is another species of delirium, depending more entirely on the diminished energy of the brain, and which may therefore arise when there is no unusual increase of the impetus of the blood in the vessels of the brain. Such seems to be the delirium occurring at the beginning of the cold stage of fevers, or in the hot stage of such fevers as show strong marks of debility in the whole system.

46. Upon the whole, our doctrine of fever is explicitly this: The remote causes (36.), are certain sedative powers applied to the nervous system, which diminishing the energy of the brain, thereby produce a debility in the whole of the functions (35.), and particularly in the action of the extreme vessels (43. 44.). Such however is, at the same time, the nature of the animal economy (38.), that this debility proves an indirect stimulus to the sanguiferous system; whence, by the intervention of the cold stage, and spasm connected with it (39. 40.), the action of the heart and larger arteries

is increased (40.), and continues so (41.) till it has had the effect of restoring the energy of the brain, of extending this energy to the extreme vessels, of restoring therefore their action, and thereby especially overcoming the spasm affecting them; upon the removing of which, the excretion of sweat, and other marks of the relaxation of excretories, take place.

47. This doctrine will, as I suppose, serve to explain not only the nature of fever in general, but also the various cases of it which occur. Before proceeding, however, to this, it may be proper to point out the opinions, and, as I apprehend, the mistakes, which have formerly prevailed on this subject.

48. It has been supposed that a lentor or viscidity prevailing in the mass of blood, and stagnating in the extreme vessels, is the cause of the cold stage of fevers and its consequences. But there is no evidence of any such viscidity previously subsisting in the fluids; and as it is very improbable that such a state of them can be very quickly produced, so the suddenness with which paroxysms come on, renders it more likely that the phenomena depend upon some cause acting upon the nervous system, or the primary moving powers of the animal economy. See Van Swieten apud Boerh. Aph. 755.

49. Another opinion, which has been almost universally received, is, that a noxious matter introduced into or generated in the body, is the proximate cause of fever; and that the increased action of the heart and arteries, which forms so great a part of the disease, is an effort of the vis medicatrix naturæ to expel this morbific matter, and particularly to change or concoct it, so as to render it either altogether innocent, or, at least, fit for being more easily thrown out of the body. This doctrine, however, although of as great antiquity as any of the records of physic now remaining, and although it has been received by almost every school of

medicine, yet appears to me to rest upon a very uncertain foundation. There are fevers produced by cold, fear, and other causes, accompanied with all the essential circumstances of fever, and terminating by sweat; but at the same time without any evidence or suspicion of morbific matter.

There have been fevers suddenly cured by a hemorrhagy, so moderate as could not carry out any considerable portion of a matter diffused over the whole mass of blood; nor can we conceive how the morbific matter could be collected or determined to pass off by such an outlet as in that case is opened.

Even supposing a morbific matter were present, there is no explanation given in what manner the concoction of it is performed; nor is it shewn that any such change does in fact take place. In certain cases, it is indeed evident, that a noxious matter is introduced into the body, and proves the cause of fever; but, even in these cases, it appears that the noxious matter is thrown out again, without having suffered any change; that the fever often terminates before the matter is expelled; and that, upon many occasions, without waiting the supposed time of concoction, the fever can be cured, and that by remedies which do not seem to operate upon the fluids, or to produce any evacuation.

50. While we thus reason against the notion of fever being an effort of nature, for concocting and expelling a morbific matter; I by no means intend to deny that the cause of fever frequently operates upon the fluids, and particularly produces a putrescent state of them. I acknowledge that this is frequently the case; but, at the same time, I maintain, that such a change of the fluids is not commonly the cause of fever; that very often it is an effect only; and that there is no reason to believe the termination of the fever to depend upon the expulsion of the putrid matter.

51. Another opinion which has prevailed, remains still to be mentioned. In intermittent fevers, a great quantity of

bile is commonly thrown out by vomiting; and this is so frequently the case, that many have supposed an unusual quantity of bile, and perhaps a peculiar quality of it, to be the cause of intermittent fevers. This, however, does not appear to be well founded. Vomiting, by whatever means excited, if often repeated, with violent straining, seems to be powerful in emulging the biliary ducts, and commonly throws out a great deal of bile. This will happen especially in the case of intermittent fevers: For as, in the state of debility and cold stage of these fevers, the blood is not propelled in the usual quantity into the extreme vessels, and particularly into those on the surface of the body, but is accumulated in the vessels of the internal parts, and particularly in the vena portarum; so this may occasion a more copious secretion of bile.

These considerations will, in some measure, account for the appearance of an unusual quantity of bile in intermittent fevers; but the circumstance which chiefly occasions the appearance of bile in these cases, is the influence of warm climates and seasons. These seldom fail to produce a state of the human body, in which the bile is disposed to pass off, by its secretories, in greater quantity than usual, and perhaps also changed in its quality, as appears from the disease of cholera, which so frequently occurs in warm seasons. At the same time, this disease occurs often without fever; and we shall hereafter render it sufficiently probable, that intermittent fevers, for the most part, arise from another cause, that is from marsh effluvia; while, on the other hand, there is no evidence of their arising from the state of the bile alone. The marsh effluvia, however, commonly operate most powerfully in the same season that produces the change and redundance of the bile; and, therefore, considering the vomiting and other circumstances of the intermittent fevers which here concur, it is not surprising that autumnal intermittents are so often attended with effusions of bile.

This view of the subject does not lead us to consider the state of the bile as the cause of intermittents, but merely as a circumstance accidentally concurring with them, from the state of the season in which they arise. What attention this requires in the conduct of the disease, I shall consider hereafter.

52. From this view of the principal hypotheses which have hitherto been maintained with respect to the proximate cause of fever, it will appear, that fevers do not arise from changes in the state of the fluids; but that, on the contrary, almost the whole of the phenomena of fevers lead us to believe that they chiefly depend upon changes in the state of the moving powers of the animal system. Though we should not be able to explain all the circumstances of the disease, it is at least of some advantage to be led into the proper train of investigation. I have attempted to pursue it, and shall now endeavour to apply the doctrine already delivered towards explaining the diversity of fevers.

CHAP. III.

OF THE DIFFERENCE OF FEVERS, AND ITS CAUSES.

53. To ascertain the difference of fevers, I think it necessary to observe, in the first place, that every fever of more than one day's duration consists of repeated, and in some measure separate paroxysms; and that the difference of fevers taken notice of above (from 25. to 30.), appears to consist in the different state of paroxysms, and in the different circumstances of their repetition.

54. That fevers generally consist of distinct, and in some measure separately repeated paroxysms, I have alleged above

to be a matter of fact; but I shall here endeavour to confirm it, by assigning the cause.

55. In every fever, in which we can distinctly observe any number of separate paroxysms, we constantly find that each paroxysm is finished in less than twenty-four hours; but as I cannot perceive any thing in the cause of fevers determining to this, I must presume it to depend on some general law of the animal economy. Such a law seems to be that which subjects the economy, in many respects, to a diurnal revolution. Whether this depends upon the original conformation of the body, or upon certain powers constantly applied to it, and inducing a habit, I cannot positively determine; but the returns of sleep and watching, of appetites and excretions, and the changes which regularly occur in the state of the pulse, show sufficiently, that in the human body a diurnal revolution takes place.

56. It is this diurnal revolution which, I suppose, determines the duration of the paroxysms of fevers; and the constant and universal limitation of these paroxysms (as observed in 55.), while no other cause of it can be assigned, renders it sufficiently probable that their duration depends upon, and is determined by the revolution mentioned. And that these paroxysms are connected with that diurnal revolution, appears further from this, that though the intervals of paroxysms are different in different cases, yet the times of the accession of paroxysms are generally fixed to one time of the day; so that Quotidians come on in the morning, Tertians at noon, and Quartans in the afternoon.

57. It remains to be remarked, that as Quartans and Tertians are apt to become Quotidians, these to pass into the state of Remittents, and these last to become Continued; and that, even in the continued form, daily exacerbations and remissions are generally to be observed; so all this shows so much the power of diurnal revolution, that when, in certain cases, the daily exacerbations and remissions are with diffi-

culty distinguished, we may still presume, that the general tendency of the economy prevails, that the disease still consists of repeated paroxysms, and, upon the whole, that there is no such disease as that which the schools have called a Continent Fever. I expect that this doctrine will be confirmed by what I shall say hereafter concerning the periodical movements observed in Continued Fevers.

- 58. It being thus proved, that every fever, of more than one day's duration, consists of repeated paroxysms, we, in the next place, remark, that the repetition of paroxysms depends upon the circumstances of the paroxysms which have already taken place. From what was observed in 30. and 31. it appears, that the longer paroxysms are protracted, they are the sooner repeated; and, therefore, that the cause of the frequent repetition is to be sought for in the cause of the protraction of paroxysms.
- 59. Agreeably to what is laid down in 46., and to the opinion of most part of physicians, I suppose that in every fever there is a power applied to the body, which has a tendency to hurt and destroy it, and produces in it certain motions which deviate from the natural state; and, at the same time, in every fever which has its full course, I suppose, that in consequence of the constitution of the animal economy, there are certain motions excited, which have a tendency to obviate the effects of the noxious power, or to correct and remove them. Both these kinds of motion are considered as constituting the disease.

But the former is perhaps strictly the morbid state, while the latter is to be considered as the operation of the vis medicatrix naturæ of salutary tendency, and which I shall hereafter call the REACTION of the system.

60. Upon the supposition that these two states take place in every paroxysm of fever, it will appear to be chiefly in the time of the hot stage that the reaction operates in removing the morbid state; and therefore, as this operation succeeds

more or less quickly, the hot stage of paroxysms will be shorter or longer. But as the length of paroxysm depends chiefly upon the duration of the hot stage, so the longer duration of this, and of paroxysms, must be owing either to the obstinacy of resistance in the morbid state, or to the weakness of the salutary reaction; and it is probable that sometimes the one and sometimes the other of these circumstances takes place.

- 61. It seems to be only by the state of the spasm, that we can judge of the resistance of the morbid state of fever: and with respect to this spasm I observe, that either the cause exciting it may be different in different cases; or, though the cause should be the same in different persons, the different degree of irritability in each may give occasion to a greater or less degree of spasm; and thereafter, the reaction in fever being given, the continuance of the hot stage, and of the whole paroxysm, may be longer or shorter, according to the degree of spasm that has been formed.
- 62. One cause of the obstinacy of spasm in fevers may be clearly perceived. In inflammatory diseases, there is a diathesis phlogistica prevailing in the body, and this diathesis we suppose to consist in an increased tone of the whole arterial system. When, therefore, this diathesis accompanies fever, as it sometimes does, it may be supposed to give occasion to the febrile spasm's being formed more strongly, and thereby to produce more protracted paroxysms. Accordingly we find that all inflammatory fevers are of the continued kind; and that all the causes of the diathesis phlogistica have a tendency to change intermittent into continued fevers. Continued fevers, then, being often attended with the diathesis phlogistica, we conclude, that in many cases this is the cause of their continued form.
- 63. In many fevers, however, there is no evidence of any diathesis phlogistica being present, nor of any other cause of more considerable spasm; and, in such cases, therefore,

we must impute the protraction of paroxysms, and the continued form of the fever, to the weakness of reaction. That this cause takes place, we conclude from hence, that, in many cases of fever, wherein the separate paroxysms are the longest protracted, and the most difficultly observed, we find the most considerable symptoms of a general debility; and therefore we infer, that in such cases, the protracted paroxysms, and continued form, depend upon a weaker reaction; owing either to the causes of debility applied having been of a more powerful kind, or from circumstances of the patient's constitution favouring their operation.

64. Upon these principles we make a step towards explaining in general, with some probability, the difference of fevers; but must own that there is much doubt and difficulty in applying the doctrine to particular cases. It applies tolerably well to explain the different states of intermittents, as they are more purely such, or as they approach more and more to the continued form: But several difficulties still remain with respect to many circumstances of intermittents; and more still with respect to the difference of those continued fevers, which we have distinguished in our Nosology as different from intermittents, and as more especially entitled to the appellation of continued, (See Syn. Nos. Meth. P. V. Ch. I. Sect. II.), and explained more fully above.

65. From the view given (63. and 64.) of the causes of the protraction of paroxysms, and therefore of the form of continued fevers, strictly so called, it seems probable, that the remote causes of these operate by occasioning either a phlogistic diathesis, or a weaker reaction; for we can observe, that the most obvious difference of continued fevers depends upon the prevalence of one or other of these states.

66. Continued fevers have been accounted of great diversity; but physicians have not been successful in marking these differences, or in reducing them to any general heads.

The distinctions made by the ancients are not well understood; and, so far as either they or the modern nosologists have distinguished continued fevers by a difference of duration, their distinctions are not well founded, and do not apply in such a manner as to be of any use. We think it agreeable to observation, and to the principles above laid down, (63. 64.), to distinguish continued fevers according as they show either an inflammatory irritation, or a weaker reaction.

- 67. This distinction is the same with that of fevers into the Inflammatory and Nervous, the distinction at present most generally received in Britain. To the first, as a genus, I have given the name of Synocha; to the second, that of Typhus; and, little studious whether these names be authorised by the ancient use of the same terms, I depend upon their being understood by the characters annexed to them in our Nosology, which I apprehend to be founded on observation.
- 68. By these characters I think continued fevers may in practice be distinguished; and, if that be the case, the principles above laid down will be confirmed.
- 69. Besides these differences of continued fever, now mentioned, I am not certain of having observed any other that can be considered as fundamental. But the most common form of continued fevers, in this climate, seems to be a combination of these two genera; and I have therefore given such a genus a place in our Nosology, under the title of Synochus. At the same time, I think that the limits between the Synochus and Typhus will be with difficulty assigned; and I am disposed to believe, that the Synochus arises from the same causes as the Typhus, and is therefore only a variety of it.
- 70. The Typhus seems to be a genus comprehending several species. These, however, are not yet well ascertained by observation; and in the mean time we can perceive that many of the different cases observed do not imply any

specific difference, but seem to be merely varieties, arising from a different degree of power in the cause, from different circumstances of the climate or season in which they happen, or from different circumstances in the constitution of the persons affected.

71. Some of the effects arising from these circumstances

require to be particularly explained.

One is, an unusual quantity of bile appearing in the course of the disease. This abundance of bile may possibly attend some continued fevers, strictly so called; but, for the reasons above explained, it more commonly attends intermittents, and, we believe, it might have been enumerated (29.) among the marks distinguishing the latter kind of fevers from the former. But, though an unusual quantity of bile should appear with continued fevers, it is considered in this case, as in that of intermittents, to be a coincidence only, owing to the state of the season, and producing no different species or fundamental distinction, but merely a variety of the disease. I think it proper to observe here, that it is probable that the most part of the continued fevers named Bilious have been truly such as belong to the section of Intermittents.

72. Another effect of the circumstances occasionally varying the appearance of typhus, is a putrescent state of the fluids. The ancients, and likewise the moderns, who are in general much disposed to follow the former, have distinguished fevers, as putrid and non-putrid: but the notions of the ancients on this subject were not sufficiently correct to deserve much notice; and it is only of late that the matter has been more accurately observed, and better explained.

From the dissolved state of the blood, as it presents itself when drawn out of the veins, or as it appears from the red blood being disposed to be effused, and run off by various outlets, and from several other symptoms, to be hereafter

mentioned, I have now no doubt, how much soever it has been disputed by some ingenious men, that a putrescency of the fluids, to a certain degree, does really take place in many cases of fever. This putrescency, however, often attends intermittent, as well as continued fevers, and, of the continued kind, both the synochus and typhus, and all of them in very different degrees; so that, whatever attention it may deserve in practice, there is no fixing such limits to it as to admit of establishing a species under the title of Putrid.

73. Beside differing by the circumstances already mentioned, were differ also by their being accompanied with symptoms which belong to diseases of the other orders of pyrexiæ. This sometimes happens in such a manner as to render it difficult to determine which of the two is the primary disease. Commonly, however, it may be ascertained by the knowledge of the remote cause, and of the prevailing epidemic, or by observing the series and succession of symptoms.

74. Most of our systems of physic have marked, as a primary one, a species of fever under the title of Hectic; but, as it is described, I have never seen it as a primary disease. I have constantly found it as a symptom of some topical affection, most commonly of an internal suppuration; and as such it shall be considered in another place.

75. The distinction of the several cases of intermittent fever I have not prosecuted here; both because we cannot assign the causes of the differences which appear, and because I apprehend, that the differences which in fact occur, may be readily understood from what is said above (25. 26. and 27.), and more fully from our Methodical Nosology, Cl. I. Sect. I.

CHAP. IV.

OF THE REMOTE CAUSES OF FEVER.

76. As fever has been held to consist chiefly in an increased action of the heart and arteries, physicians have supposed its remote causes to be certain direct stimulants fitted to produce this increased action. In many cases, however, there is no evidence of such stimulants being applied; and in those in which they are applied, they either produce only a temporary frequency of the pulse, which cannot be considered as a disease; or if they do produce a permanent febrile state, it is by the intervention of a topical inflammation, which produces a disease different from what is strictly called fever (8.).

77. That direct stimulants are the remote causes of fever, seems farther improbable; because the supposition does not account for the phenomena attending the accession of fevers; and because other remote causes can with greater

certainty be assigned.

78. As fevers are so generally epidemic, it is probable that some matter floating in the atmosphere, and applied to the bodies of men, ought to be considered as the remote cause of fevers: and these matters present in the atmosphere, and thus acting upon men, may be considered either as Contagions, that is, effluvia arising directly or originally from the body of a man under a particular disease, and exciting the same kind of disease in the body of the person to whom they are applied; or Miasmata, that is, effluvia arising from other substances than the bodies of men, producing a disease in the person to whom they are applied.

- 79. Contagions have been supposed to be of great variety; and it is possible this may be the case; but that they truly are so, does not appear clearly from any thing we know at present. The genera and species of contagious diseases, of the class of Pyrexiæ, at present known, are in number not very great. They chiefly belong to the order of Fevers, to that of Exanthemata, or that of Profluvia. Whether there be any belonging to the order of Phlegmasiæ, is doubtful; and though there should, it will not much increase the number of contagious pyrexiæ. Of the contagious exanthemata and profluvia, the number of species is nearly ascertained; and each of them is so far of a determined nature, that though they have now been observed and distinguished for many ages, and in many different parts of the world, they have been always found to retain the same general character, and to differ only in circumstances, that may be imputed to season, climate, and other external causes, or to the peculiar constitutions of the several persons affected. It seems therefore probable, that in each of these species the contagion is of one specific nature; and that the number of contagious exanthemata or profluvia is hardly greater than the number of species enumerated in the systems of nosology.
- 80. If, while the contagious exanthemata and profluvia are thus limited, we should suppose the contagious pyrexiæ to be still of great and unlimited variety, it must be with respect to the genera and species of continued fevers. But if I be right in limiting, as I have done, the genera of these fevers, (67.—70.), it will appear likely that the contagions which produce them are not of great variety; and this will be much confirmed, if we can render it probable that there is one principal, perhaps one common source of such contagions.
 - 81. To this purpose, it is now well known, that the effluvia constantly arising from the living human body, if

long retained in the same place, without being diffused in the atmosphere, acquire a singular virulence; and in that state being applied to the bodies of men, become the cause of a fever, which is highly contagious.

The existence of such a cause is fully proved by the late observations on jail and hospital fevers; and that the same virulent matter may be produced in many other places, must be sufficiently obvious: and it is probable that the contagion arising in this manner is not, like many other contagions, permanent and constantly existing, but that, in the circumstances mentioned, it is occasionally generated. At the same time, the nature of the fevers from thence upon different occasions arising, renders it probable, that the virulent state of human effluvia is the common cause of them, as they differ only in a state of their symptoms; which may be imputed to the circumstances of season, climate, &c. concurring with the contagion, and modifying its force.

82. With respect to these contagions, though we have spoken of them as of a matter floating in the atmosphere, it is proper to observe, that they are never found to act but when they are near to the sources from whence they arise; that is, either near to the bodies of men, from which they immediately issue; or near to some substances which, as having been near to the bodies of men, are imbued with their effluvia, and in which substances these effluvia are sometimes retained in an active state for a very long time.

The substances thus imbued with an active and infectious matter may be called *Fomites*; and it appears to me probable, that contagions, as they arise from fomites, are more powerful than as they arise immediately from the human body.

83. Miasmata are next to be considered. These may arise from various sources, and be of different kinds; but we know little of their variety, or of their several effects. We know with certainty only one species of miasma, which can

be considered as the cause of fever; and, from the universality of this, it may be doubted if there be any other.

84. The miasma, so universally the cause of fever, is that which arises from marshes or moist ground, acted upon by heat. So many observations have now been made with respect to this, in so many different regions of the earth, that there is neither any doubt of its being in general a cause of fevers, nor of its being very universally the cause of intermittent fevers, in all their different forms. The similarity of the climate, season, and soil, in the different countries in which intermittents arise, and the similarity of the diseases, though arising in different regions, concur in proving that there is one common cause of these diseases, and that this is the marsh miasma.

What is the particular nature of this miasma, we know not; nor do we certainly know whether or not it differs in kind: but it is probable that it does not; and that it varies only in the degree of its power, or perhaps as to its quantity, in a given space.

85. It has been now rendered probable, that the remote causes of fevers (8.) are chiefly Contagions or Miasmata, and neither of them of great variety. We have supposed that miasmata are the cause of intermittents, and contagions the cause of continued fevers, strictly so named; but we cannot with propriety employ these general terms: For, as the cause of continued fevers may arise from fomites, and may, in such cases, be called a Miasma; and as other miasmata also may produce contagious diseases, it will be proper to distinguish the causes of fevers, by using the terms Human or Marsh Effluvia, rather than the general ones of Contagion, or Miasma.

86. To render our doctrine of fever consistent and complete, it is necessary to add here, that those remote causes of fever, human and marsh effluvia, seem to be of a debilitating or sedative quality. They arise from a putrescent mat-

ter. Their production is favoured, and their power increased, by circumstances which favour putrefaction; and they often prove putrefactive ferments with respect to the animal fluids. As putrid matter, therefore, is always, with respect to animal bodies, a powerful sedative, so it can hardly be doubted that human and marsh effluvia are of the same quality; and it is confirmed by this, that the debility which is always induced, seems to be in proportion to the other marks that appear of the power of those causes.

87. Though we have endeavoured to show that fevers generally arise from marsh or human effluvia, we cannot, with any certainty, exclude some other remote causes, which are commonly supposed to have at least a share in producing those diseases. And I proceed, therefore, to inquire concerning these causes; the first of which that merits attention is the power of cold applied to the human body.

88. The operation of cold on a living body is so different in different circumstances, as to be of difficult explanation; it is here, therefore, attempted with some diffidence.

The power of cold may be considered as absolute or relative.

The absolute power is that by which it can diminish the temperature of the body to which it is applied. And thus, if the natural temperature of the human body is, as we suppose it to be, that of 98 degrees of Fahrenheit's thermometer *, every degree of temperature less than that, may be considered as cold with respect to the human body; and, in proportion to its degree, will have a tendency to diminish the temperature of the body. But as the living human body has in itself a power of generating heat, so it can sustain its own proper heat to the degree above mentioned, though sur-

[•] In every instance of our mentioning degrees of heat or cold, we shall mention them by the degrees in Fahrenheit's scale; and the expression of higher or lower shall always be according to that scale.

rounded by air or other bodies of a lower temperature than itself; and it appears from observation, that in this climate, air, or other bodies, applied to the living man, do not diminish the temperature of his body, unless the temperature of the bodies applied be below 62 degrees. From hence it appears, that the absolute power of cold in this climate does not act upon the living human body, unless the cold applied be below the degree just now mentioned.

It appears also, that the human body's being surrounded by air of a lower temperature than itself, is necessary to its being retained in its proper temperature of 98 degrees: for, in this climate, every temperature of the air above 62 degrees, applied to the human body, though still of a lower temperature than itself, is found to increase the heat of it. And from all this it appears, that the absolute power of cold with respect to the human body, is very different from what it is with respect to inanimate bodies.

human body, is that power by which it produces a sensation of cold in it; and with respect to this, it is agreeable to the general principle of sensation, that the sensation produced is not in proportion to the absolute force of impression, but according as the new impression is stronger or weaker than that which had been applied immediately before. Accordingly, with respect to temperature, the sensation produced by any degree of this depends upon the temperature to which the body had been immediately before exposed; so that whatever is higher than this feels warm, and whatever is lower than it feels cold; and it will therefore happen that the opposite sensations of heat and cold may on different occasions arise from the same temperature, as marked by the thermometer.

With respect to this, however, it is to be observed, that though every change of temperature gives a sensation of cold or heat, as it is lower or higher than the temperature applied immediately before, the sensation produced is, in different cases, of different duration. If the temperature at any time applied is under 62 degrees, every increase of temperature applied will give a sensation of heat; but if the increase of temperature does not arise to 62 degrees, the sensation produced will not continue long, but be soon changed to a sensation of cold. In like manner, any temperature, applied to the human body, lower than that of the body itself, gives a sensation of cold; but if the temperature applied does not go below 62 degrees, the sensation of cold will not continue long, but be soon changed to a sensation of heat.

It will appear hereafter, that the effects of the sensation of cold will be very different, according as it is more permanent or transitory.

- 90. Having thus explained the operation of cold as absolute or relative with respect to the human body, I proceed to mention the general effects of cold upon it.
- 1. Cold, in certain circumstances, has manifestly a sedative power. It can extinguish the vital principle entirely, either in particular parts, or in the whole body; and considering how much the vital principle of animals depends upon heat, it cannot be doubted that the power of cold is always more or less directly sedative.

This effect may be said to take place from every degree of absolute cold; and when the heat of the body has upon any occasion been preternaturally increased, every lower temperature may be useful in diminishing the activity of the system; but it cannot diminish the natural vigour of the vital principle, till the cold applied is under 62 degrees; nor even then will it have this effect, unless the cold applied be of an intense degree, or be applied for some length of time to a large portion of the body.

2. It is equally manifest, that in certain circumstances cold proves a *stimulus* to the living body, and particularly to the sanguiferous system.

It is probable that this effect takes place in every case in which the temperature applied produces a sensation of cold; and this, therefore, as depending entirely on the relative power of cold, will be in proportion to the change of temperature that takes place.

It appears to me probable, that every change of temperature, from a higher to a lower degree, will prove more or less stimulant, excepting when the cold applied is so intense, as immediately to extinguish the vital principle in the

part.

3. Beside the sedative and stimulant powers of cold, it is manifestly also a powerful astringent, causing a contraction of the vessels on the surface of the body, and thereby producing a paleness of the skin, and a suppression of perspiration; and it seems to have similar effects when applied to internal parts. It is likewise probable, that this constriction, as it takes place especially in consequence of the sensibility of the parts to which the cold is applied, will in some measure be communicated to other parts of the body; and that thereby the application of cold proves a tonic power with respect to the whole system.

These effects of tonic and astringent power seem to take place both from the absolute and relative power of cold; and therefore every application of it which gives a sensation of cold, is, in its first effect, both astringent and stimulant, though the former may be often prevented from being either considerable or permanent when the latter immediately takes place.

91. It will be obvious that these several effects of cold cannot all take place at the same time, but may in succession be variously combined. The stimulant power taking place obviates the effects, at least the permanency of the effects, that might otherwise have arisen from the sedative power. That the same stimulant power prevents these from the astrin-

gent, I have said above; but the stimulant and tonic powers of cold are commonly, perhaps always, conjoined.

- 92. These general effects of cold, now pointed out, are sometimes salutary, and frequently morbid; but it is the latter only I am to consider here, and they seem to be chiefly the following:
- 1. A general inflammatory disposition of the system, which is commonly accompanied with rheumatism or other phlegmasiæ.
- 2. The same inflammatory disposition accompanied with catarrh.
 - 3. A gangrene of particular parts.
 - 4. A palsy of a single member.
- 5. A fever, or fever strictly so called (8.), which it often produces by its own power alone, but more commonly it is only an exciting cause of fever, by concurring with the operation of human or marsh effluvia.
- 93. Cold is often applied to the human body without producing any of these morbid effects, and it is difficult to determine in what circumstances it especially operates in producing them. It appears to me, that the morbid effects of cold depend partly upon certain circumstances of the cold itself, and partly on certain circumstances of the person to whom it is applied.
- 94. The circumstances of the cold applied, which seem to give it effect, are, 1. The intensity or degree of the cold; 2. The length of time during which it is applied; 3. The degree of moisture at the same time accompanying it; 4. Its being applied by a wind or current of air; 5. Its being a vicissitude, or sudden and considerable change of temperature, from heat to cold.
- 95. The circumstances of persons rendering them more liable to be affected by cold, seem to be, 1. The weakness of the system, and particularly the lessened vigour of the circulation, occasioned by fasting, by evacuations, by fatigue,

by a last night's debauch, by excess in venery, by long watching, by much study, by rest immediately after great exercise, by sleep and by preceding disease. 2. The body, or its parts, being deprived of their accustomed coverings.

3. One part of the body being exposed to cold, while the rest is kept in its usual, or a greater warmth.

96. The power of these circumstances (95.) is demonstrated by the circumstances enabling persons to resist cold. These are, a certain vigour of constitution, exercise of the body, the presence of active passions, and the use of cordials.

Besides these, there are other circumstances which, by a different operation, enable persons to resist cold acting as a sensation; such as, passions engaging a close attention to one object, the use of narcotics, and that state of the body in which sensibility is greatly diminished, as in maniacs. To all which is to added, the power of habit with respect to those parts of the body to which cold is more constantly applied, which both diminishes sensibility, and increases the power of the activity generating heat.

97. Beside cold, there are other powers that seem to be remote causes of fever; such as fear, intemperance in drinking, excess in venery, and other circumstances, which evidently weaken the system. But whether any of these sedative powers be alone the remote cause of fever, or if they only operate either as concurring with the operation of marsh or human effluvia, or as giving an opportunity to the operation of cold, are questions not to be positively answered: they may possibly of themselves produce fever, but most frequently they operate as concurring in one or other of the ways above mentioned.

98. Having now mentioned the chief of the remote causes of fevers, it may be further observed, that these will arise more or less readily, according as miasmata and contagions

are more or less prevailing and powerful, or as these are more or less favoured by the concurrence of cold and other sedative powers.

CHAP. V.

OF THE PROGNOSIS OF FEVERS.

99. As fevers (by 60.) consist of both morbid and salutary motions and symptoms, the tendency of the disease to a happy or fatal issue, or the prognostic in fevers, has been established by marking the prevalence of the morbid or of the salutary symptoms; and it might be properly so established, if we could certainly distinguish between the one and the other of these kinds of symptoms: but the operation of the reaction, or salutary efforts of nature in curing fevers, is still involved in so much obscurity, that I cannot explain the several symptoms of it so clearly as to apply them to the establishing prognostics; and this, I think, may be done better, by marking the morbid symptoms which shew the tendency to death in fevers.

100. This plan of the prognostics in fevers must proceed upon our knowledge of the causes of death in general, and in fevers more particularly.

The causes of death, in general, are either direct or indi-

rect.

The first are those which directly attack and destroy the vital principle, as lodged in the nervous system, or destroy the organization of the brain immediately necessary to the action of that principle.

The second, or the indirect causes of death, are those

which interrupt such functions as are necessary to the circulation of the blood, and thereby necessary to the due continuance and support of the vital principle.

101. Of these general causes, those which operate more particularly in fevers seem to be, first, The violence of reaction, which, either by repeated violent excitements, destroys the vital power itself, or by its violence destroys the organization of the brain necessary to the action of that power, or, by the same violence, destroys the organization of the parts more immediately necessary to the circulation of the blood.

Secondly, The cause of death in fevers may be a poison, that is, a power capable of destroying the vital principle; and this poison may be either the miasma or contagion, which was the remote cause of the fever, or it may be a putrid matter generated in the course of the fever. In both cases, the operation of such a power appears either as acting chiefly on the nervous system, inducing the symptoms of debility, or as acting upon the fluids of the body, inducing a putrescent state in them.

102. From all this it appears that the symptoms showing the tendency to death in fevers, may be discovered by their being either the symptoms,

Of violent reaction :

Of great debility:

Or, of a strong tendency to putrefaction in the fluids.

And, upon this supposition, I proceed now to mark those symptoms more particularly.

103. The symptoms which denote the violence of reaction are, 1. The increased force, hardness and frequency of the pulse: 2. The increased heat of the body: 3. The symptoms which are the marks of a general inflammatory diathesis, and more especially of a particular determination to the brain, lungs, or other important viscera: 3. The symptoms which are the marks of the cause of violent reaction, that is, of a strong stimulus applied, or of a strong spasm formed,

the latter appearing in a considerable suppression of the excretions.

104. The symptoms which denote a great degree of debili-

ty, are,

In the Animal Functions: 1. The weakness of the voluntary motions; 2. The irregularity of the voluntary motions, depending on their debility; 3. The weakness of sensation; 4. The weakness and irregularity of the intellectual operations.

In the VITAL FUNCTIONS: 1. The weakness of the pulse; 2. The coldness or shrinking of the extremities; 3. The tendency to a deliquium animi in an erect posture; 4. The

weakness of respiration.

In the NATURAL FUNCTIONS: I. The weakness of the stomach, as appearing in anorexia, nausea, and vomiting; 2. Involuntary excretions, depending upon a palsy of the sphincters; 3. Difficult deglutition, depending upon a palsy of the muscles of the fauces.

105. Lastly, The symptoms denoting the putrescent state

of the fluids, are,

1. With respect to the stomach; the loathing of animal food, nausea and vomiting, great thirst, and a desire of acids.

- 2. With respect to the fluids: 1. The blood drawn out of the veins not coagulating as usual; 2. Hemorrhagy from different parts, without marks of increased impetus; 3. Effusions under the skin or cuticle, forming petechiæ, maculæ and vibices; 4. Effusions of a yellow serum under the cuticle.
- 3. With respect to the state of the excretions; fetid breath, frequent loose and fetid stools, high coloured turbid urine, fetid sweats, and the fetor and livid colour of blistered places.

4. The cadaverous smell of the whole body.

106. These several symptoms have very often, each of

them singly, a share in determining the prognostic: but more especially by their concurrence and combination with one another; particularly those of debility with those of putrescency.

- 107. On the subject of the prognostic, it is proper to observe, that many physicians have been of opinion there is something in the nature of fevers which generally determines them to be of a certain duration; and therefore that their terminations, whether salutary or fatal, happen at certain periods of the disease, rather than at others. These periods are called the Critical Days; carefully marked by Hippocrates and other ancient physicians, as well as by many moderns of the greatest eminence in practice; while, at the same time, many other moderns, of no inconsiderable authority, deny their taking place in the fevers of these northern regions which we inhabit.
- 108. I am of opinion that the doctrine of the ancients, and particularly that of Hippocrates on this subject, was well founded; and that it is applicable to the fevers of our climate.
- 109. I am of this opinion, first, Because, I observe that the animal economy, both from its own constitution, and from habits which are easily produced in it, is readily subjected to periodical movements. Secondly, Because, in the diseases of the human body, I observe periodical movements to take place with great constancy and exactness; as in the case of intermittent fevers, and many other diseases.
- 110. These considerations render it probable, that exact periodical movements may take place in continued fevers; and I think there is evidence of such movements actually taking place.
- 111. The critical days, or those on which we suppose the termination of continued fevers especially to happen, are the third, fifth, seventh, ninth, eleventh, fourteenth, seventeenth, and twentieth. We mark none beyond this last; because, though

fevers are sometimes protracted beyond this period, it is however more rarely; so that there are not a sufficient number of observations to ascertain the course of them; and further, because it is probable, that in fevers long protracted, the movements become less exact and regular, and therefore less easily observed.

seems to be proved by the particular facts which are found in the writings of Hippocrates. From these facts, as collected from the several writings of that author by *M. de Haen*, it appears, that of one hundred and sixty-three instances of the termination of fevers, which happened on one or other of the first twenty days of the disease, there are one hundred and seven, or more than two-thirds of the whole number, which happened on one or other of the eight days above mentioned; that none happened on the second or thirteenth day; and upon the eighth, tenth, twelfth, fifteenth, sixteenth, eighteenth, and nineteenth, there are but eighteen instances of termination, or one-ninth of the whole.

113. As the terminations which happen on the seven days last mentioned, are, upon the whole, few, and, upon any one of them, fewer than those which happen on any of our supposed critical days; so there are therefore nine days which may be called Non-Critical: while, on the other hand, the many terminations which happened on the seventh, fourteenth, and twentieth days, afford a proof, both of critical days in general, and that these are the chief of them. Hereafter I shall mention an analogy that renders the power of the other critical days sufficiently probable.

114. It appears further, that as, of the terminations which were final and salutary, not a tenth part happened on the non-critical days; and of the terminations which were final and fatal, though the greater number happened on the critical days, yet above a third of them happened on the non-critical; so it would appear, that the tendency of

the animal economy is to observe the critical days, and that it is by the operation of some violent and irregular cause that the course of things is sometimes turned to the non-critical.

115. What has been said gives sufficient ground for presuming, that it is the general tendency of the animal economy to determine the periodical movements in fevers to be chiefly on the critical days. At the same time, we must acknowledge it to be a general tendency only; and that, in particular cases, many circumstances may occur to disturb the regular course of it. Thus, though the chief and more remarkable exacerbations in continued fevers happen on the critical days, there are truly exacerbations happening every day; and these, from certain causes, may become considerable and critical. Further, though intermittent fevers are certainly very strongly determined to observe a tertian or quartan period, we know there are circumstances which prevent them from observing these periods exactly, and which render them either anticipating or postponing so much, that the days of paroxysms come to be quite changed; and it is allowable to suppose, that the like may happen with respect to the exacerbations of continued fevers. so as thereby to disturb the regular appearance of critical days.

A particular instance of this occurs with respect to the sixth day of fevers. In the writings of Hippocrates, there are many instances of terminations happening on the sixth day; but it is not therefore reckoned among the critical days; for, of the terminations happening on that day, there is not one which proves finally of a salutary kind; the greater number are fatal; and all the rest are imperfect, and followed with a relapse. All this shows, that some violent cause had, in these cases, produced a deviation from the ordinary course of nature; that the terminations on the

sixth day are nothing more than anticipations of the seventh, and therefore a proof of the power of this last.

116. The doctrine of critical days has been much embarrassed by some dissonant accounts of it, which appear in the writings imputed to Hippocrates. But this may be justly accounted for from these writings being truly the works of different persons, and from the most genuine of them having suffered many corruptions; so that, in short, every thing which is inconsistent with the facts above laid down may be ascribed to one or other of these causes.

117. This, further, has especially disturbed the doctrine of critical days, that Hippocrates himself attempted, perhaps too hastily, to establish general rules, and to bring the doctrine to a general theory, drawn from Pythagorean opinions concerning the power of numbers. It is this which seems to have produced the idea of odd days, and of a quaternary and septenary period, doctrines which appear so often in the writings of Hippocrates. These, however, are inconsistent with the facts above laid down; and indeed, as Asclepiades and Celsus have observed, are inconsistent with one another.

118. Upon the whole, therefore, it is apprehended, that the critical days above assigned are truly the critical days of Hippocrates, and may be consistently explained in the

following manner:

119. From the universality of tertian or quartan periods in intermittent fevers, we cannot doubt of their being, in the animal economy, a tendency to observe such periods; and the critical days above mentioned are consistent with this tendency of the economy, as all of them mark either tertian or quartan periods. These periods, however, are not promiscuously mixed, but occupy constantly their several portions in the progress of the disease; so that, from the beginning to the eleventh day, a tertian period takes

place; and, from the eleventh to the twentieth, and perhaps longer, a quartan period is as steadily observed.

120. What determines the periods to be changed about the eleventh day, we have not clearly perceived; but the fact is certain; for there is no instance of any termination on the thirteenth, that is, the tertian period next following the eleventh; whereas, upon the fourteenth, seventeenth, and twentieth, which mark quartan periods, there are forty-three instances of terminations, and six only on all the intermediate days between these.

This prevalence of a quartan period leaves no room for doubting that the twentieth, and not the twenty-first, is the critical day marked by Hippocrates, though the last is mentioned as such in the common edition of the Aphorisms, taken from an erroneous manuscript, which Celsus also seems to have copied.

121. A consistency with the general tendency of the system, renders the series of critical days we have mentioned, probably the true one; and the only remaining difficulty in finding what we have delivered to be the same with the genuine doctrine of Hippocrates, is the frequent mention of the fourth as a critical day.

It is true there are more instances of terminations happening on this day than on some of those days we have asserted to be truly critical: but its inconsistency with the more general tendency, and some other considerations, lead us to deny its being naturally a critical day; and to think that the instances of terminations, which have really occurred on the fourth day, are to be reckoned among the other irregularities that happen in this matter.

122. I have thus endeavoured to support the doctrine of critical days chiefly upon the particular facts to be found in the writings of Hippocrates; and although I might also produce many other testimonies of both ancient and modern times, yet it must be owned that some of these testimonies

may be suspected to have arisen rather from a veneration of Hippocrates, than from accurate observation.

- 123. With respect to the opinions of many moderns who deny the prevalence of critical days, they are to be little regarded; for the observation of the course of continued fevers is known to be difficult and fallacious; and therefore the regularity of that course may have often escaped inattentive and prejudiced observers.
- 124. Our own observations amount to this, that fevers, with moderate symptoms, generally cases of the Synocha, frequently terminate in nine days, or sooner, and very constantly upon one or other of the critical days which fall within that period; but it is very rare, in this climate, that cases of either the typhus or synochus terminate before the eleventh day; and when they do terminate on this day, it is for the most part fatally. When they are protracted beyond this time, I have very constantly found that their terminations were upon the fourteenth, seventeenth, or twentieth day.

In such cases, the salutary terminations are seldom attended with any considerable evacuation. A sweating frequently appears, but is seldom considerable; and I have hardly ever observed critical and decisive terminations attended with vomiting, evacuations by stool, or remarkable changes in the urine. The solution of the disease is chiefly to be discerned from some return of sleep and appetite, the ceasing of delirium, and an abatement of the frequency of the pulse. By these symptoms we can often mark a crisis of the disease; but it seldom happens suddenly and entirely; and it is most commonly from some favourable symptoms occurring upon one critical day, that we can announce a more entire solution upon the next following.

Upon the whole, I am persuaded, that, if observations shall be made with attention, and without prejudice, I shall be allowed to conclude with the words of the learned and

sagacious Gaubius: "Fallor, ni sua constiterit HIPPOCRATI" auctoritas, GALENO fides, NATURÆ virtus et ordo."

CHAP. VI.

OF THE METHOD OF CURE IN FEVERS.

Sect. I.—Of the Cure of Continued Fevers.

125. As it is allowed, that in every fever which has its full course, there is an effort of nature of a salutary tendency, it might be supposed that the cure of fevers should be left to the operations of nature, or that our art should be only directed to support and regulate these operations, and that we should form our indications accordingly. This plan, however, I cannot adopt, because the operations of nature are very precarious, and not so well understood as to enable us to regulate them properly. It appears to me, that trusting to these operations has often given occasion to a negligent and inert practice; and there is reason to believe, that an attention to the operations of nature may be often superseded by art.

126. The plan which to me appears to be most suitable, is that which forms the indications of cure upon the view of obviating the tendency to death; while, at the same time, the means of executing these indications are directed by a proper attention to the proximate cause of fevers.

Upon this plan, in consequence of what has been laid down above on the subject of the prognostic, we form three general indications in the cure of continued fevers; and the one or other of these is to be employed according as the circumstances of the fever (102.) shall direct.

The first therefore is, To moderate the violence of reaction.

The second is, To remove the causes, or obviate the effects, of debility. And,

The third is, To obviate or correct the tendency of the fluids to putrefaction.

- 127. The first indication may be answered, that is, the violence of reaction may be moderated;
- 1. By all those means which diminish the action of the heart and arteries.
- 2. By those means which take off the spasm of the extreme vessels, which we suppose to be the chief cause of violent reaction.
- 128. The action of the heart and arteries may be diminished,
- 1. By avoiding or moderating those irritations, which, in one degree or other, are almost constantly applied to the body.
 - 2. By the use of certain sedative powers.
- 3. By diminishing the tension and tone of the arterial system.
- 129. The irritations (128. 1.) almost constantly applied, are the impressions made upon our senses, the exercise of the body and mind, and the taking in of aliments. The avoiding these as much as possible, or the moderating their force, constitute what is rightly called the Antiphlogistic Regimen, proper to be employed in almost every continued fever.
- 130. The conduct of this regimen is to be directed by the following rules and considerations:
- 1. Impressions on the external senses, as being stimulant to the system, and a chief support of its activity, should be avoided as much as possible; those especially of more constant application, those of a stronger kind, and those which give pain and uneasiness.

No impression is to be more carefully guarded against

than that of external heat; while, at the same time, every other means of increasing the heat of the body is to be shunned. Both these precautions are to be observed as soon as a hot stage is fully formed, and to be attended to during its continuance; excepting in certain cases, where a determination to sweating is necessary, or where the stimulant effects of heat may be compensated by circumstances which determine it to produce a relaxation and revulsion.

2. All motion of the body is to be avoided, especially that which requires the exercise of its own muscles; and that posture of the body is to be chosen which employs the fewest muscles, and which keeps none of them long in a state of contraction. Speaking, as it accelerates respiration, is particularly to be refrained from.

It is to be observed, that every motion of the body is the more stimulant in proportion as the body is weaker.

3. The exercise of the mind also is a stimulus to the body; so that all impressions which lead to thought, and those especially which may excite emotion or passion, are to be carefully shunned.

With respect to avoiding impressions of all kinds, an exception is to be made in the case of a delirium coming on, when the presenting of accustomed objects may have the effect of interrupting and diverting the irregular train of ideas then arising in the mind.

4. The presence of recent aliment in the stomach always proves a stimulus to the system, and ought therefore to be as moderate as possible. A total abstinence for some time may be of service; but as this cannot be long continued with safety, we must avoid the stimulus of aliment, by choosing that kind which gives the least. We suppose that alimentary matters are more stimulant, according as they are more alkalescent; and this leads to avoid all animal, and to use vegetable food only.

As our drinks also may prove stimulant, so all aromatic

and spirituous liquors are to be avoided; and in answering the present indication, all fermented liquors, excepting those of the lowest quality, are to be abstained from.

131. Beside these stimulant powers more constantly applied, there are others which, although occasional only, yet, as commonly accompanying fevers, must be attended to and removed.

One is, the sense of thirst, which, as a powerful stimulus, ought always, in one way or other, to be removed.

Another stimulus frequently arises from crudities, or corrupted humours in the stomach; and it is to be removed by vomiting, by dilution, or by the use of acids.

A third stimulus often arises from the preternatural retention of fæces in the intestines; and ought to be removed by frequent laxative glysters.

A fourth stimulus to be constantly suspected in fevers, is a general acrimony of the fluids, as produced by the increase of motion and heat, joined with an interruption of the excretions. This acrimony is to be obviated or removed by the taking in of large quantities of mild antiseptic liquors.

132. The avoiding of irritation in all these particulars (130. and 131.), constitutes the antiphlogistic regimen absolutely necessary for moderating the violence of reaction: and, if I mistake not, is proper in almost every circumstance of continued fevers, because the propriety and safety of employing stimulants is often uncertain; and because several of those above mentioned, beside their stimulant powers, have other qualities by which they may be hurtful.

It appears to me, that the supposed utility of stimulants, in certain cases of fever, has often arisen from a mistake in having ascribed to their stimulant what really depended upon their antispasmodic power.

133. A second head of the means (128. 2.) for moderating the violence of reaction, comprehends certain sedative powers, which may be employed to diminish the activity of the whole body, and particularly that of the sanguiferous system.

The first of these to be mentioned is the application of cold.

Heat is the chief support of the activity of the animal system, which is therefore provided in itself with a power of generating heat; but, at the same time, we observe, that this would go to excess, were it not constantly moderated by a cooler temperature in the surrounding atmosphere. When, therefore, that power of the system generating heat is increased, as is commonly the case in fevers, it is necessary not only to avoid all means of increasing it further, but it seems proper also to apply air of a cooler temperature, or at least to apply it more entirely and freely, than in a state of health.

Some late experiments in the small-pox, and in continued fevers, show that the free admission of cool air to the body is a powerful remedy in moderating the violence of reaction; but what is the mode of its operation, to what circumstances of fever it is peculiarly adapted, or what limitations it requires, I shall not venture to determine, till more particularly instructed by further experience.

134. A second sedative power which may be employed in fevers, is that of certain medicines, known, in the writings on the Materia Medica, under the title of Refrigerants.

The chief of these are acids of all kinds, when sufficiently diluted; and they are, in several respects, remedies adapted to continued fevers. Those especially in use are, the Vitriolic and Vegetable, and, on many accounts, we prefer the latter.

135. Another set of refrigerants are the Neutral Salts, formed of the vitriolic, nitrous, or vegetable acids, with alkalis, either fixed or volatile. All these neutrals, while they are dissolving in water, generate cold; but as that cold ceases soon after the solution is finished, and as the salts are generally exhibited in a dissolved state, their refrigerant power in the animal body does not at all depend upon their

power of generating cold with water. The neutral chiefly employed as a refrigerant is Nitre; but all the others, compounded as above mentioned, partake more or less of the same quality.

136. Beside these neutrals, some metallic salts also have been employed as refrigerants in fevers, and particularly the Sugar of Lead. But the refrigerant powers of this are not well ascertained, and its deleterious qualities are too well

known to admit of its being freely used.

137. Under the third general head (128. 3.) of the means to be employed for moderating the violence of reaction, are comprehended the several means of diminishing the tension, tone, and activity of the sanguiferous system. As the activity of this system depends, in a great measure, upon the tone, and this again upon the tension of the vessels given to them by the quantity of fluids they contain, it is evident, that the diminution of the quantity of these must diminish the activity of the sanguiferous system.

138. The quantity of fluids, contained in the sanguiferous system, may be diminished most conveniently by the eva-

cuations of blood-letting and purging.

139. Nothing is more evident, than that blood-letting is one of the most powerful means of diminishing the activity of the whole body, especially of the sanguiferous system, and it must therefore be the most effectual means of moderating the violence of reaction in fevers. Taking this as a fact, I omit inquiring into its mode of operation, and shall only consider in what circumstance of fevers it may be most properly employed.

140. When the violence of reaction, and its constant attendant, a phlogistic diathesis, are sufficiently manifest; when these constitute the principal part of the disease, and may be expected to continue throughout the whole of it, as in the cases of synocha, then blood-letting is the principal remedy, and may be employed as far as the symptoms of the

disease may seem to require, and the constitution of the patient will bear. It is, however, to be attended to, that a greater evacuation than is necessary may occasion a slower recovery, may render the person more liable to a relapse, or may bring on other diseases.

- 141. In the case of synocha, therefore, there is little doubt about the propriety of blood-letting; but there are other species of fever, as the synochus, in which a violent reaction and phlogistic diathesis appear, and prevail during some part of the course of the disease; while, at the same time, these circumstances do not constitute the principal part of the disease, nor are to be expected to continue during the whole course of it; and it is well known, that, in many cases, the state of violent reaction is to be succeeded, sooner or later, by a state of debility, from the excess of which the danger of the disease is chiefly to arise. It is therefore necessary that, in many cases, blood-letting should be avoided; and even although, during the inflammatory state of the disease, it may be proper, it will be necessary to take care that the evacuation be not so large as to increase the state of debility which is to follow.
- 142. From all this it must appear, that the employing blood-letting, in certain fevers, requires much discernment and skill, and is to be governed by the consideration of the following circumstances:
 - 1. The nature of the prevailing epidemic.
 - 2. The nature of the remote cause.
 - 3. The season and climate in which the disease occurs.
 - 4. The degree of phlogistic diathesis present.
 - 5. The period of the disease.
 - 6. The age, vigour, and plethoric state of the patient.
- 7. The patient's former diseases and habits of blood-letting.
 - 8. The appearance of the blood drawn out.

9. The effects of the blood-letting that may have been

already practised.

143. When, after the consideration of these circumstances, blood-letting is determined to be necessary, it should be observed, that it is more effectual according as the blood is more suddenly drawn off, and as the body is, at the same time, more free from all irritation, and, consequently, when in a posture in which the fewest muscles are in action.

144. Another evacuation, whereby the quantity of fluids contained in the body can be considerably diminished, is

that of Purging.

145. If we consider the quantity of fluids constantly present in the cavity of the intestines, and the quantity which may be drawn from the innumerable excretories that open into this cavity, it will be obvious that a very great evacuation can be made by purging; and if this be done by a stimulus applied to the intestines, without being at the same time communicated to the rest of the body, it may, by emptying both the cavity of the intestines, and the arteries which furnish the excretions poured into it, induce a considerable relaxation in the whole system; and therefore, purging seems to be a remedy suited to moderate the violence of reaction in fevers.

146. But it is to be observed, that as the fluid drawn from the excretories opening into the intestines, is not all drawn immediately from the arteries, as a part of it is drawn from the mucous follicles only; and as what is even more immediately drawn from the arteries is drawn off slowly; so the evacuation will not, in proportion to its quantity, occasion such a sudden depletion of the red vessels as bloodletting does; and therefore cannot operate so powerfully in taking off the phlogistic diathesis of the system.

147. At the same time, as this evacuation may induce a considerable degree of debility, so, in those cases in which a dangerous state of debility is likely to occur, purging is to

be employed with a great deal of caution, and more especially as the due measure of the evacuation is more difficult to be applied than in the case of blood-letting.

148. As we shall presently have occasion to observe, that it is of great importance, in the cure of fevers, to restore the determination of the blood to the vessels on the surface of the body; so purging, as in some measure taking off that determination, seems to be an evacuation not well adapted to the cure of fevers.

149. If, notwithstanding these doubts, (146. 147. and 148.) it shall be asserted, that purging, even from the exhibition of purgatives, has often been useful in fevers; I would beg leave to maintain, that this has not happened from a large evacuation; and therefore, not by moderating the violence of reaction, excepting in the case of a more purely inflammatory fever, or of exanthemata of an inflammatory nature. In other cases of fever, I have seen a large evacuation by purging, of mischievous consequence; and if, upon occasion, a more moderate evacuation has appeared to be useful, it is apprehended to have been by only taking off the irritation of retained fæces, or by evacuating corrupted humours which happened to be present in the intestines; for both of which purposes frequent laxatives may be properly employed.

150. Another set of means (127. 2.) for moderating the violence of reaction in fevers, are those suited to take off the spasm of the extreme vessels, which we believe to be the irritation that chiefly supports the reaction.

Though I have put here this indication of taking off the spasm of the extreme vessels, as subordinate to the general indication of moderating the violence of reaction, it is however to be observed here, that as fever universally consists in an increased action of the heart, either in frequency or in force, which in either case is supported by a spasm of the extreme vessels, so the indication for removing this is a very general one, and applicable in almost every circumstance of fever, or at least with a few exceptions, to be taken notice of hereafter.

- 151. For taking off the spasm of the extreme vessels, the means to be employed are either internal or external.
 - 152. The internal means (151.) are,
- 1. Those which determine the force of the circulation to the extreme vessels on the surface of the body, and, by restoring the tone and activity of these vessels, may overcome the spasm on their extremities;
- 2. Those medicines which have the power of taking off spasm in any part of the system, and which are known under the title of Antispasmodics.
- 153. Those remedies which are fit to determine to the surface of the body, are,
 - 1. DILUENTS.
- 2. NEUTRAL SALTS.
 - 3. Sudorifics.
 - 4. EMETICS.
- position of all the animal fluids, and a large quantity of it is always diffused through the whole of the common mass. Indeed, in a sound state, the fluidity of the whole mass depends upon the quantity of water present in it. Water, therefore, is the proper diluent of our mass of blood; and other fluids are diluent only in proportion to the quantity of water they contain.
- matters which ought to be excerned; and in a healthy state the fulness of the extreme vessels, and the quantity of excretions, are nearly in proportion to the quantity of water present in the body. In fever, however, although the excretions are in some measure interrupted, they continue in such quantity as to exhale the more fluid parts of the blood; and while a portion of them is, at the same time, necessarily retained in the larger vessels, the smaller and

the extreme vessels, both from the deficiency of fluid, and their own contracted state, are less filled, and therefore allowed to remain in that condition.

- 156. To remedy this contracted state, nothing is more necessary than a large supply of water or watery fluids, taken in by drinking, or otherwise; for as any superfluous quantity of water is forced off by the several excretories, such a force applied may be a means of dilating the extreme vessels, and of overcoming the spasm affecting their extremities.
- 157. Accordingly the throwing in of a large quantity of watery fluids has been at all times a remedy much employed in fevers; and in no instance more remarkably, than by the Spanish and Italian physicians, in the use of what they call the diæta aquea.
- 158. This practice consists in taking away every other kind of aliment and drink, and in giving in divided portions every day, for several days together, six or eight pounds of plain water, generally cold, but sometimes warm. All this, however, is to be done only after the disease has continued for some time, and at least for a week.
- 159. A second means (153. 2.) of determining to the surface of the body, is by the use of neutral salts. These, in a certain dose, taken into the stomach, produce soon after a sense of heat upon the surface of the body; and, if the body be covered close, and kept warm, a sweat is readily brought out. The same medicines, taken during the cold stage of a fever, ve y often put an end to the cold stage, and bring on the hot; and they are also remarkable for stopping the vomiting which so frequently attends the cold stage of fevers. All this shows that neutral salts have a power of determining the blood to the surface of the body, and may therefore be of use in taking off the spasm which in fevers subsists there.

160. The neutral most commonly employed in fevers, is that formed of an alkali with the native acid of vegetables: but all the other neutrals have more or less of the same virtue; and perhaps some of them, particularly the ammoniacal salts, possess it in a stronger degree.

161. As cold water taken into the stomach often shows the same diaphoretic effects with the neutral salts, it is probable that the effect of the latter depends upon their refrigerant powers mentioned above (134.). What is the effect of the neutral salts, given when they are forming and in a state of effervescence? It is probable that this circumstance may increase the refrigerant power of these salts, and may introduce into the body a quantity of fixed air; but for these purposes it would seem proper to contrive that the whole of the effervescence should take place in the stomach.

162. A third means (153. 3.) of determining to the surface of the body, and taking off the spasm subsisting there, is by the use of sudorific medicines, and of sweating.

163. The propriety of this remedy has been much disputed; and specious arguments may be adduced both for and against the practice.

In favour of the practice, it may be said,

1. That in healthy persons, in every case of increased action of the heart and arteries, a sweating takes place, and is seemingly the means of preventing the bad effects of such increased action.

2. That, in fevers, their most usual solution and termina-

tion is by spontaneous sweating.

3. That, even when excited by art, it has been found manifestly useful, at certain periods, and in certain species of fever.

164. Upon the other hand, it may be urged against the

practice of sweating,

1. That as in fevers a spontaneous sweating does not immediately come on, so there must be in these some circumstances different from those in the state of health, and which may therefore render it doubtful whether the sweating can be safely excited by art.

- 2. That, in many cases, the practice has been attended with bad consequences. The means commonly employed have a tendency to produce an inflammatory diathesis; which, if not taken off by the sweat following their use, must be increased with much danger. Thus, sweating employed to prevent the accession of intermitting fevers, has often changed them into a continued form, which is always dangerous.
- . 3. The utility of the practice is further doubtful, because sweating, when it happens, does not always give a final determination; as must be manifest in the case of intermittents, as well as in many continued fevers, which are sometimes in the beginning attended with sweatings that do not prove final; and, on the contrary, whether spontaneous or excited by art, seem often to aggravate the disease.
- 165. From these considerations, it is extremely doubtful if the practice of sweating can be admitted very generally; but at the same time, it is also doubtful, if the failure of the practice, or the mischiefs said to have arisen from it, have not been owing to the improper conduct of the practitioner.

With respect to this last, it is almost agreed among physicians,

- 1. That sweating has been generally hurtful when excited by stimulant, heating, and inflammatory medicines.
- 2. That it has been hurtful when excited by much external heat, and continued with a great increase of the heat of the body.
- 3. That it is always hurtful when it does not soon relieve, but rather increases the frequency and hardness of the pulse, the anxiety and difficulty of breathing, the headach, and delirium.
 - 4. That it is always hurtful if it be urged when the sweat

is not fluid, and when it is partial, and on the superior parts

of the body only.

166. In these cases, it is probable, that either an inflammatory diathesis is produced, which increases the spasm on the extreme vessels; or that, from other causes, the spasm is too much fixed to yield easily to the increased action of the heart and arteries; and upon either supposition, it must be obvious, that urging the sweat, as ready to produce a hurtful determination to some of the internal parts, may be attended with very great danger.

167. Though the doubts started (164.) are to be attended to; and although the practices (165.) having been found hurtful, are therefore to be rejected; it still remains true,

1. That sweating has certainly been often useful in preventing the accession of fevers, when the times of this have been certainly foreseen, and a proper conduct employed.

2. That, even after fevers have in some measure come on, sweating, when properly employed, either at the very beginning of the disease, or during its approach and gradual formation, has often prevented their further progress.

3. That, even after pyrexiæ have continued for some time, sweating has been successfully employed in curing them, as

particularly in the case of rheumatism.

4. That certain fevers, produced by a very powerful sedative contagion, have been generally treated, so far as we yet

know, most successfully by sweating.

168. These instances (167.) are in favour of sweating, but give no general rule; and it must be left to further experience to determine how far any general rule can be established in this matter. In the mean time, if the practice of sweating is to be attempted, we can venture to lay down the following rules for the conduct of it.

1. That it should be excited without the use of stimulant

inflammatory medicines.

- 2. That it should be excited with as little external heat, and with as little increase of the heat of the body, as possible.
- 3. That, when excited, it should be continued for a due length of time, not less than twelve hours, and sometimes for twenty-four or forty-eight hours; always, however, providing that it proceeds without the circumstances mentioned (165. 3. 4.)

4. That, for some part of the time, and as long as the person can easily bear, it should be carried on without admit-

ting of sleep.

5. That it should be rendered universal over the whole body; and therefore, particularly, that care be taken to bring the sweating to the lower extremities.

6. That the practice should be rendered safer by mode-

rate purging, excited at the same time.

7. That it should not be suddenly checked by cold any

how applied to the body.

169. When attention is to be given to these rules, the sweating may be excited, 1. By warm bathing or a fomentation of the lower extremities. 2. By frequent draughts of tepid liquors, chiefly water, rendered more grateful by the addition of a light aromatic, or more powerful by that of a small quantity of wine. 3. By giving small doses of neutral salts. 4. Most effectually, and perhaps most safely, by a large dose of an opiate, joined with a portion of neutral salts, and of an emetic.

In what cases may cold water, thrown into the stomach in large quantities, be employed to excite sweating, see Celsus, lib. iii. chap. vii.—ix.

170. The fourth means (153. 1.) of determining to the surface of the body, and thereby taking off the spasm affecting the extreme vessels, is by the use of emetics.

171. Emetics, and particularly antimonial emetics, have been employed in the cure of fevers ever since the introduc-

tion of chemical medicines; but, for a long time, they were employed by chemists and chemical practitioners only; and although of late the use of them has become very general, their efficacy is still disputed, and their manner of operating is not commonly explained.

- 172. Vomiting is in many respects useful in fevers; as it evacuates the contents of the stomach; as it emulges the biliary and pancreatic ducts; as it evacuates the contents of the duodenum, and perhaps also of a large portion of the intestines; as it agitates the whole of the abdominal viscera, expedites the circulation in them, and promotes their several secretions; and, lastly, as agitating also the viscera of the thorax, it has like effects there. All these several effects are, in many cases and circumstances of fever, procured with advantage; but do not properly fall under our view here, where we are to consider only the effect of vomiting in determining to the surface of the body.
- 173. This effect we do not impute to the exercise of vomiting in agitating the whole frame, but to the particular operation of emetics upon the muscular fibres of the 'stomach, whereby they excite the action of the extreme arteries on the surface of the body, so as thereby effectually to determine the blood into these vessels, remove the atony, and take off the spasm affecting them.
- 174. That such is the power of emetics, will appear from the several considerations mentioned above (44.); and therefore that they are remedies well suited to the cure of fevers.
- 175. Emetics, for that purpose, are administered in two different ways; that is, either in such doses as may excite full and repeated vomitings; or in such doses as may excite sickness and nausea only, with little or no vomiting at all.
- 176. Full vomiting is best suited to the several purposes mentioned (172.); and is also well suited to determine to

the surface of the body, so as thereby to obviate the atony and spasm which lay the foundation of fever. Thus vomiting, excited a little before the expected accession of the paroxysm of an intermittent, has been found to prevent the paroxysm altogether. And it has been observed also, that when contagion has been applied to a person, and first discovers its operation, a vomit given will prevent the fever, which was otherwise to have been expected. See Lind on Fevers and Infection.

177. These are advantages to be obtained by exciting vomiting at the first approach of fevers, or of the paroxysms of fevers; and after fevers are formed, vomiting may also be employed, to take off, perhaps entirely, the atony and spasm, or at least to moderate these, so that the fever may proceed more gently and safely.

178. It is seldom, however, that vomiting is found to produce a final solution of fevers; and, after they are once formed, it is commonly necessary to repeat the vomiting several times; but this is attended with inconvenience, and sometimes with disadvantage. The operation of full vomiting commonly soon ceases, and the exercise of vomiting is often a debilitating power; and therefore, when the vomiting does not remove the atony and spasm very entirely, it may give occasion to their recurring with greater force.

179. For these reasons, after fevers are fully formed, physicians have thought proper to employ emetics in nauseating doses only. These are capable of exciting the action of the extreme vessels, and their operation is more permanent. At the same time, they often show their power by exciting some degree of sweat; and their operation is rendered more safe, by their commonly producing some evacuation by stool.

180. Such are the advantages to be procured by nauseating doses of emetics; and it only remains to mention, what

are the medicines most fit to be employed in that manner, what are the most proper times for exhibiting, and what is the best manner of administering them.

181. The emetics at present chiefly in use, are Ipecacuanha and Antimony.

The former may be employed for every purpose of emetics, particularly those mentioned 172. It may likewise be employed either in larger or smaller doses, for determining to the surface of the body; but, even in very small doses, it so readily excites vomiting, as to be with difficulty employed for the purpose of nauseating only: and, however employed, there is reason to believe that its effects are less permanent, and less powerfully communicated from the stomach to the rest of the system, than those of Antimony.

182. This, therefore, is generally preferred; and its preparations, seemingly various, may all be referred to two heads: the one comprehending those in which the reguline part is in a condition to be acted upon by acids, and therefore, on meeting with acids in the stomach, becomes active: and the other comprehending those preparations in which the reguline part is already joined with an acid, rendering it active.

183. Of each kind there are great numbers, but not differing essentially from one another. It will be enough for us to compare the Calx Antimonii Nitrata of the Edinburgh Dispensatory with the Emetic Tartar of the same. The former, as I judge, is nearly the same with what is called James's powder. Which of these is best suited to the cure of fevers, as above explained, seems doubtful; but it appears to me, that, although the former may have some advantages from its slower operation, and may thereby seem to be more certainly sudorific and purgative, yet the uncertainty of its dose renders it inconvenient, has often given occasion to the timid to be disappointed, and the bold to do mischief. On the other hand, the dose of the Emetic Tartar can be ex-

actly ascertained; and I think it may be exhibited in such a manner as to produce all the advantages of the other.

184. Whichsoever of these preparations be employed, I judge the most proper time for exhibiting them to be the time of accessions, or a little before, when that can be certainly known. In continued fevers, the exacerbations are not always very observable: but there is reason to think, that one commonly happens about noon, or soon after it, and another in the evening; and that these therefore are the most proper times for exhibiting emetics.

185. With respect to the manner of administration, that of the Calx Nitrata is simple, as the whole of what is judged a proper dose is given at once, and no more can properly be given till the time of the next accession.

The administration of the Emetic Tartar is different. It is to be given in small doses, not sufficient to excite vomiting; and these doses, after short intervals, are to be repeated for several times, till sickness, nausea, and some, but not much, vomiting come on. The difference of this administration must depend upon the dose, and the length of the intervals at which it is given. If it be intended that the medicine should certainly operate by stool, the doses are made small, and the intervals long. On the contrary, when vomiting is proper, or when much purging ought to be avoided, and therefore some vomiting must be admitted, the doses are made larger and the intervals shorter.

186. With respect to both kinds of preparations, the repetition is to be made at the times of accession, but not very often; for if the first exhibitions, duly managed, have little effect, it is seldom that the after exhibitions have much; and it sometimes happens that the repeated vomitings, and especially repeated purgings, do harm by weakening the patient.

187. The other set of internal medicines (152. 2.), which I suppose may be useful in taking off the spasm of the extreme vessels, are those named Antispasmodic. How many

of these may be properly employed, I am uncertain, and their mode of operation is involved in great obscurity. It is certain, however, that opium, camphor, musk, and perhaps some others, have been employed in fevers with advantage; but the circumstances in which they are especially proper and safe, I find difficult to ascertain, and therefore cannot venture here to lay down any general doctrine concerning them.

188. The external means (151.) suited to take off the spasm of the extreme vessels, are BLISTERING and WARM BATHING.

189. What are the effects of Blistering, so frequently employed in fevers, is not yet agreed upon among physicians; and many different opinions have been maintained on this subject, drawn not only from reasoning, but also from presumed experience. I must not, however, enter into controversy, but shall deliver my own opinion in a few words.

- 190. I am persuaded, that the small quantity of cantharides absorbed from a blistering plaster, is not sufficient to
 change the consistence of the mass of blood, and, therefore,
 that such a quantity can neither do good, by resolving phlogistic lentor, if it exists, nor do harm, by increasing the dissolution of the blood arising from a putrid tendency in it. I,
 therefore, neglect entirely the effects of cantharides upon the
 fluids.
- 191. The inflammation produced by the application of cantharides to the skin, affords a certain proof of their stimulant power; but, in many persons, the effect of that stimulus is not considerable; in many, it is not communicated to the whole system; and, even when the effect does take place in the whole system, it seems to be taken off very entirely, by the effusion and evacuation of serum from the blistered part. I conclude, therefore, that neither much good is to be expected, nor much harm to be apprehended, from the stimulant power of blistering; and the certainty of this conclusion

is established, by the great benefit arising from the proper practice of blistering in inflammatory diseases.

192. Much has been imputed to the evacuation occasioned by blistering; but it is never so considerable as to affect the whole system; and, therefore, can neither, by sudden depletion, relax the sanguiferous vessels, nor, by any revulsion, affect the general distribution of the fluids.

193. The evacuation, however, is so considerable as to affect the neighbouring vessels; and the manifest utility of blistering near the part affected, in inflammatory diseases, leads me to believe, that blistering, by deriving to the skin, and producing an effusion there, relaxes the spasm of the deeper-seated vessels. I apprehend it to be in this manner that the tumour of a joint, from an effusion into the cellular texture under the skin, takes off the rheumatic pain affecting that joint.

194. Analogous to this, it may be held, that the good effects of blistering, in continued fevers, arise from its relaxing the spasm of the extreme vessels, by a communication of the blistered part with the rest of the skin; and this is illustrated by the effect of blistering in cholic and dysentery.

195. It appears to me, that blistering may be employed at any period of continued fevers, but that it will be of most advantage in the advanced state of such fevers, when the reaction being weaker, all ambiguity from the stimulant power of blistering is removed, and when it may best concur with other circumstances tending to a final solution of the spasm.

196. From the view of this matter given in 193. and 194, it will appear, that the part of the body to which blisters ought to be applied, is indifferent, excepting upon the suspicion of topical affection, when the blistering ought to be made as near as possible to the part affected.

197. Whether SINAPISMS, and other RUBEFACIENTIA, act in a manner analogous to what we have supposed of blister-

ing, may be doubtful; but their effects in rheumatism, and other inflammatory diseases, render it probable.

198. The other external means of taking off the spasm of the extreme vessels, is Warm Bathing. This was frequently, and in various circumstances, employed by the ancients; but till very lately has been neglected by modern physicians. As the heat of the bath stimulates the extreme vessels, and, with the concurrence of moisture, also relaxes them, it seems to be a safe stimulus, and well suited to take off the spasm affecting them.

199. It may be applied to the whole body by immersion: but this is in many respects inconvenient; and whether some of the inconveniences of immersion might not be avoided by a vapour bath, I have not learned from experience. I know, however, from much experience, that most of the purposes of warm bathing can be obtained by a fomentation of the legs and feet, if properly administered, and continued for a due length of time, which ought not to be less than an hour.

200. The marks of the good effects of such a fomentation are, the patient's bearing it easily, its relieving delirium, and inducing sleep.

201. Having now considered the several means of satisfying the first general indication in the cure of fevers, I proceed to the second (126.), which is, To remove the cause, or

obviate the effects of debility.

202. Most of the sedative powers inducing debility, cease to act soon after they have been first applied; and therefore the removing them is not an object of our present indication. There is only one which may be supposed to continue to act for a long time; and that is the contagion applied: but we know nothing of the nature of contagion that can lead us to any measures for removing or correcting it. We know only its effects as a sedative power inducing debility, or as a ferment inducing a tendency to putrefaction in the fluids.

The obviating the latter will be considered under our third general indication, and the former alone is to be considered here.

203. The debility induced in fevers by contagion, or other causes, appears especially in the weaker energy of the brain; but in what this consists, or how it may be directly restored, we do not well know. As nature however does, seemingly for this purpose, excite the action of the heart and arteries, we ascribe the continuance of debility to the weaker reaction of the sanguiferous system; so that the means to be employed for obviating debility are immediately directed to support and increase the action of the heart and arteries; and the remedies used are Tonics or Stimulants.

204. In contagious diseases, both from the effects which appear, and from dissections, it is known that the tone of the heart and arteries is considerably diminished; and that tonic remedies therefore are properly indicated.

These are to be considered as of two kinds; the first being the power of cold, the second that of tonic medicines.

- 205. The power of cold, as a tonic, I have mentioned above (90.); and it is employed in fevers in two ways; either as the cold matter is thrown into the stomach, or as it is applied to the surface of the body.
- 206. As it has been shown above, that the tonic power of cold can be communicated from any one part to every other part of the system; so it will readily be allowed, that the stomach is a part as fit for this communication as any other; and that cold drink taken into the stomach may therefore prove an useful tonic in fevers.
- 207. This the experience of all ages has confirmed: but, at the same time, it has been frequently observed, that in certain circumstances, cold drink, taken into the stomach, has proved very hurtful; and therefore that the use of cold drink in fevers requires some limitations. What these limitations should be, and what are all the circumstances which

may forbid the use of cold drink, is difficult to determine; but it seems clearly forbidden, in all cases where a phlogistic diathesis prevails in the system, and more especially when there are topical affections of an inflammatory nature.

208. The other method of employing cold as a tonic, is by applying it to the surface of the body. The application of cold air to the surface of the body, as a refrigerant power fit to moderate the violence of reaction, I have spoken of above (133.); but probably it may also be considered here as a tonic, and useful in cases of debility.

209. Not only cool air, but cold water also may be applied to the surface of the body, as a refrigerant, and perhaps as a tonic. The ancients frequently applied it with advantage to particular parts as a tonic; but it is a discovery of modern times, that in the case of putrid fevers, attended with much debility, the body may be washed all over with cold water.

210. This was first practised at Breslaw in Silesia, as appears from a dissertation, under the title of *Epidemia verna quæ Wratislaviam*, anno 1737, afflixit, to be found in the appendix to the Act. Nat. Curios. vol. x. And from other writers we find, that the practice has passed into some of the neighbouring countries; although in this island, so far as I know, we have hitherto had no experience of it.

211. The medicines which have been employed in fevers, as tonics, are various. If the Saccharum Saturni has been found useful, it is probably as a tonic, rather than as a refrigerant; and the Ens Veneris, or other preparations of iron which have been employed, can act as tonics only. The preparations of copper, from their effects in epilepsy, are presumed to possess a tonic power; but whether their use in fevers be founded upon their tonic or their emetic powers, may be uncertain. The use of arsenic and of alum, in intermittent fevers, seems manifestly to depend upon their tonic power. And, upon the whole, there may occur cases of

continued fevers, which may be cured by tonics taken from the fossil kingdom: but the use of these has been rare, as well as the effects uncertain; and physicians have employed, more commonly, the vegetable tonics.

- 212. A great variety of these has been employed in the cure of intermittent fevers; but how many of them may be employed in continued fevers, or in what circumstances of these fevers, is not well ascertained; and I shall now only consider the question with respect to the most celebrated of these tonics, the Peruvian Bark.
- 213. This bark has been commonly considered as a specific, or as a remedy of which the operation was not understood. But it is certainly allowable to inquire into this matter; and I apprehend it may be explained.
- 214. To this purpose it is to be remarked, that as in many cases the effects of the bark are perceived soon after its being taken into the stomach, and before it can possibly be conveyed to the mass of blood, we may conclude, that its effects do not arise from its operating on the fluids; and must therefore depend upon its operating on the nerves of the stomach, and being thereby communicated to the rest of the nervous system. This operation seems to be a tonic power, the bark being a remedy in many cases of debility, and particularly in gangrene: and, as the recurrence of the paroxysms of intermittent fevers depends upon a recurrence of atony (35. and 36.), so probably the bark, by its tonic power, prevents the recurrence of these paroxysms; and this is greatly confirmed by observing, that many other tonic medicines answer the same purpose.
- 215. If the operation of the bark may be thus explained, from its possessing a tonic power, it is easy to perceive why it is improper when a phlogistic diathesis prevails; and, from the same view, we can ascertain in what cases of continued fever it may be admitted. These are either after considerable remissions have appeared, when it may be em-

ployed to prevent the return of exacerbations, on the same footing that it is used in intermittent fevers, or in the advanced state of fevers, when all suspicion of an inflammatory state is removed, and a general debility prevails in the system; and its being then employed is sufficiently agreeable to the present practice.

216. With respect to the use of the bark, it is proper to add, that good effects are to be expected from it, almost on-

ly when given in substance and in large quantity.

217. Another set of medicines to be employed for obviating debility and its effects, are the direct stimulants (203.). These, in some measure, increase the tone of the moving fibres; but they are different from the tonics, as more directly exciting and increasing the action of the heart and arteries. This mode of their operation renders the use of them ambiguous; and when an inflammatory diathesis is present, as so often happens in the beginning of fevers, the effects of these stimulants may be very hurtful; but it still remains probable, that in the advanced state of fevers, when debility prevails, they may be useful.

218. What are the stimulants that may be most properly employed, I am uncertain, as the use of them in this age has been rare; but I am disposed to believe that, of all kinds,

wine is the best.

219. Wine has the advantage of being grateful to the palate and stomach, and of having its stimulant parts so much diluted, that it can be conveniently given in small doses; so that it may be employed with sufficient caution; but it is of

little service, unless taken pretty largely.

220. It may be supposed, and on good grounds, that wine has an operation analogous to that of opium, and some other narcotic medicines. It may, indeed, be said, that we can distinctly mark its stimulant power only, which renders its effects in the phrenitic delirium manifestly hurtful, and, in the mild delirium, depending on debility, as remarkably use-

- ful. But in all this the analogy with opium is still obvious; and it is probable, that both wine and opium are more useful by their sedative and antispasmodic, than by their stimulant powers.
- 221. These are the means of answering our second general indication (126. 2.); and I now proceed to the third, which is, To obviate or to correct the tendency of the fluids to putrefaction.
 - 222. This may be done,
- 1. By avoiding any new application of putrid or putrescent matter.
- 2. By evacuating the putrid or putrescent matter already present in the body.
- 3. By correcting the putrid or putrescent matter remaining in the body.
- 4. By supporting the tone of the vessels, and thereby resisting further putrefaction, or obviating its effects.
- 223. The further application of putrid or putrescent matter may be avoided,
- 1. By removing the patient from places filled with corrupted air.
- 2. By correcting the air from which he cannot be removed.
- 3. By preventing the accumulation of the patient's own effluvia, by a constant ventilation, and by a frequent change of bed-clothes and body-linen.
- 4. By the careful and speedy removal of all excrementitial matters from the patient's chamber.

By avoiding animal food, or correcting it.

- 224. The putrid or putrescent matter already present in the body may be evacuated, partly by evacuating frequently the contents of the intestines, and more effectually still, by supporting the excretions of perspiration and urine, by the plentiful use of diluents.
 - 225. The putrid or putrescent matter remaining in the

body may be rendered more mild and innocent by the use of diluents, or may be corrected by the use of antiseptics. These last are of many and various kinds, but which of them are conveniently applicable, or more particularly suited to the case of fevers, is not well ascertained. Those most certainly applicable and useful, are, acescent aliments, acids of all kinds, neutral salts, and fixed air.

226. The progress of putrefaction may be considerably retarded, and its effects obviated, by supporting the tone of the vessels; and this may be done by tonic remedies, the chief of which are, Cold, and Peruvian Bark, both sufficient-

ly treated of above (205. et seq.).

227. I have now finished the consideration of the three general indications to be formed in the cure of continued fevers, and have mentioned most of the remedies which have been, upon any occasion, employed in this business. It was necessary, in the first place, to consider these indications and remedies separately, and to explain the operation of the latter more generally; but from what has been now delivered, compared with what was said above, concerning the difference of fevers, and the signification of their several symptoms in forming the prognostic, I expect it will not be difficult to assign the indication, and to select and combine the several remedies mentioned, so as to adapt them to the several species and circumstances of continued fevers.

I think it may be useful for my Readers to have the whole of the Cure of CONTINUED FEVERS brought under one view, as in the following TABLE:

IN THE CURE OF CONTINUED FEVERS,

THE INDICATIONS ARE,

1. To moderate the violence of reaction.

Which may be done by,

1. Diminishing the action of the heart and arteries, by

- A. Avoiding or moderating those irritations which are almost constantly applied to the body; as,
 - a. The impressions made upon our senses, particularly,
 - a. Increased heat, whether arising from
 - ax. External heat, or
 - ββ. The accumulation of the heat of the body.
 - b. The exercise of the body,
 - c. The exercise of the mind,
 - d. The taking in of aliment.
 - e. Particular irritations arising from
 - a. The sense of thirst,
 - 3. Crudities or corrupted humours in the stomach,
 - y. The preternatural retention of fæces,
 - 3. A general acrimony of the fluids.
- B. Employing certain sedative powers; as,
 - a. Cold.
 - b. Refrigerants; the chief of which are,
 - a. Acids of all kinds,
 - β. Neutral salts.
 - y. Metallic salts.
- C. Diminishing the tension and tone of the arterial system, by
 - a. Blood-letting,
 - b. Purging.
- 2. Taking off the spasm of the extreme vessels, by
 - A. Internal means; which are,
 - a. Those remedies which determine to the surface,
 - a. Diluents,
 - β. Neutral salts,
 - y. Sudorifics,
 - 3. Emetics.
 - b. Those remedies named antispasmodics.

- B. External means; as,
 - a. Blistering,
 - b. Warm bathing.
- II. To remove the causes, or obviate the effects of debility, by
 - 1. Supporting and increasing the action of the heart and arteries, by
 - A. Tonics, as,
 - a. Cold,
 - b. Tonic medicines, which are either,
 - α. Fossil, as,
 - aa. Saccharum saturni, &c. or
 - s. Vegetable, as,
 - aa. Peruvian Bark.
 - B. Stimulants, as,
 - a. Aromatics, &c.
 - b. Wine.
 - III. To obviate or correct the tendency of the fluids to putrefaction, by
 - 1. Avoiding the application of putrid or putrescent matter, by
 - A. Removing the patient from places filled with corrupted air.
 - B. Correcting the air, from which he cannot be removed.
 - C. Avoiding the accumulation of the patient's own effluvia, by
 - a. A constant ventilation.
 - b. Frequently changing the bed-clothes and body-linen.
 - D. Removing carefully and speedily all excrementitial matters.

- E. Avoiding animal food, or correcting it.
- 2. Evacuating the putrid or putrescent matter already present in the body, by
 - A. Evacuating frequently the intestines.
 - B. Supporting the excretions of perspiration and urine, by
 - a. Diluents,
 - b. Neutral salts.
- 3. Correcting the putrid or putrescent matter remaining in the body, by
 - A. Diluents,
 - B. Antiseptics,
 - C. Fixed air.
- 4. Resisting farther putrefaction, or obviating its effects, by

Supporting the tone of the vessels, by Tonic remedies.

Sect. II.—Of the Cure of Intermittent Fevers.

- 228. It still remains to consider the cure of intermittent fevers; and, with respect to these, we form also three general indications;
- 1. In the time of intermission, to prevent the recurrence of paroxysms.
- 2. In the time of paroxysms, to conduct these so as to obtain a final solution of the disease.
- 3. To take off certain circumstances which might prevent the fulfilling of the two first indications.
 - 229. The first indication may be answered in two ways:
 - 1. By increasing the action of the heart and arteries some time before the period of accession, and supporting that increased action till the period of accession be over, so as thereby to prevent the recurrence of the atony and spasm

of the extreme vessels which give occasion to the recurrence of paroxysms.

- 2. Without increasing the action of the heart and arteries, the recurrence of paroxysms may be prevented, by supporting the tone of the vessels, and thereby preventing atony, and the consequent spasm.
- 230. For the purpose mentioned in 229. 1., the action of the heart and arteries may be increased;
- 1. By various stimulant remedies, internally given, or externally applied, and that without exciting sweat.
- 2. By the same remedies, or others so managed as to excite sweating, and to support that sweating till the period of accession be for some time past.
- 3. By nauseating doses of emetics, given about an hour before the time of accession, thereby supporting and increasing the tone and action of the extreme vessels.
- 231. The tone of the extreme vessels may be supported without increasing the action of the heart and arteries (229. 2.) by various tonic medicines; as,
 - 1. Astringents alone.
 - 2. Bitters alone.
 - 3. Astringents and bitters conjoined.
 - 4. Astringents and aromatics conjoined.
 - 5. Certain metallic tonics.
 - 6. Opiates.

Lastly, An impression of horror.

A good deal of exercise, and as full a diet as the condition of the patient's appetite and digestion may allow of, will be proper during the time of intermission, and may be considered as belonging to this head.

232. Of all the tonic remedies mentioned (231.), the most celebrated, and perhaps the most certainly effectual, is the Peruvian bark, the tonic power of which we have endeavoured to demonstrate above (214.), and have, at the same time, explained its use in continued fevers.

The same observation as made in 216. is especially proper in the case of intermittents; and further, with respect to these, the following observations or rules are offered here:

- 1. That the bark may be employed with safety at any period of intermittent fevers, providing that at the same time there be neither a phlogistic diathesis prevailing in the system, nor any considerable or fixed congestion present in the abdominal viscera.
- 2. The proper time for exhibiting the bark in intermittent fevers is during the time of intermission; and where intermissions are to be expected, it is to be abstained from in the time of paroxysms.
- 3. In remittents, though no entire apyrexia occurs, the bark may be given during the remissions; and it should be given, even though the remissions be inconsiderable, if from the known nature of the epidemic, intermissions or considerable remissions are not to be soon expected, and that great danger is apprehended from repeated exacerbations.
- 4. In the case of genuine intermittents, while a due quantity of bark is to be employed, the exhibition of it ought to be brought as near to the time of accession as the condition of the patient's stomach will allow.
- 5. In general, in all cases of intermittents, it is not sufficient that the recurrence of paroxysms be stopped for once by the use of the bark; a relapse is commonly to be expected, and should be prevented by the exhibition of the bark, repeated at proper intervals.
- 233. Our second general indication for conducting the paroxysms of intermittent fevers, so as to obtain a final solution of the disease, may be answered,
- 1. By exhibiting emetics during the time of the cold stage, or at the beginning of the hot.
 - 2. By opiates given during the time of the hot stage.
 - 234. The circumstances which may especially prevent

the fulfilling of those two indications, and therefore give occasion to our third, are, a phlogistic diathesis prevailing in the system, and congestions fixed in the abdominal viscera. The first must be removed by blood-letting and the antiphlogistic regimen; the second, by vomiting and purging.

Where these measures are not immediately effectual, I hold it safer to attempt the cure of the disease by the means pointed out in general in 229., rather than by those in article

second of the same paragraph.

BOOK II.

OF INFLAMMATIONS,

OR PHLEGMASIÆ.

ORD. II. PHLEGMASIÆ.

Febris synocha; phlogosis; vel dolor topicus, simul læså partis internæ functione; sanguis missus, et jam concretus, superficiem coriaceam albam ostendens.

G. VII. Phlogosis.—Pyrexia, partis externæ rubor, calor, et tensio dolens.

Species I. Phlogosis (phlegmone) rubore vivido; tumore circumscripto, in fastigium plerumque elevato, sæpe in apostema abeunte; dolore sæpe pulsatili.

Species II. Phlogosis (erythema) colore rubicundo, pressione evanescente; ambitu inæquali, serpente; tumore vix evidente, in cuticulæ squamulas, in phlyctænas vel vesiculas abeunte: dolore urente.

APOSTEMA.—Post phlogosin, remittentibus dolore et pulsatione, tumor albescens, mollis, fluctuans, pruriens.

GANGRÆNA.—Post phlogosin, pars livens, mollis, parum sensibilis, sæpe cum vesiculis ichorosis.

SPHACELUS.—Post gangrænam pars nigricans, flaccida, facile lacerabilis, sine sensu vel calore, et cum fætore carnis putridæ; vitio celeriter serpente.

CHAP. I.

OF INFLAMMATION IN GENERAL.

SECT. I .- Of the Phenomena of Inflammation.

235. When any part upon the surface of the body is affected with unusual redness, heat, pain, and tumor, we name

the disease an Inflammation or Phlegmasia. These symptoms of inflammation are never considerable, without the whole system being at the same time affected with pyrexia.

- 236. As the external, so likewise the internal parts may be affected with inflammation; and we judge them to be so, when, together with pyrexia, there is a fixed pain in any internal part, attended with some interruption in the exercise of its functions.
- 237. We judge of the presence of inflammation also from the state of the blood drawn out of the veins. When the blood, after cooling and concreting, shows a portion of the gluten separated from the rest of the mass, and lying on the surface of the crassamentum; as such separation happens in all cases of more evident phlegmasia; so in ambiguous cases, we, from this appearance, joined with other symptoms, infer the presence of inflammation. At the same time, it must be observed, that as several circumstances in blood-letting may prevent this separation of gluten from taking place in blood otherwise disposed to it; so, from the absence of such appearance, we cannot always conclude against the presence of inflammation.
- 238. I cannot easily give any other general history of the phenomena of inflammation than what is contained in the three preceding paragraphs; and the variations which may take place in its circumstances will occur to be more properly taken notice of under the several heads of the particular genera and species to be hereafter mentioned. I proceed, therefore, to inquire into the proximate cause of inflammation in general.

SECT. II.—Of the Proximate Cause of Inflammation.

239. The phenomena of inflammation (235.) all concur in showing, that there is an increased impetus of the blood in the vessels of the part affected; and as, at the same time,

the action of the heart is not always evidently increased, there is reason to presume that the increased impetus of the blood in the particular part is owing especially to the increased action of the vessels of that part itself.

240. The cause of this increased action in the vessels of a particular part is therefore what we are to inquire after, and to consider as the proximate cause of inflammation.

In many cases, we can manifestly perceive, that inflammation arises from the application of stimulant substances to the part. When the application of such stimulants therefore is evident, we seek for no other cause of inflammation; but as in many cases such application is neither evident, nor with any probability to be supposed, we must, in such cases, seek for some other cause of the increased impetus of the blood in the vessels of the part.

- 241. Many physicians have supposed, that an obstruction of the extreme vessels, any how produced, may prove a cause of inflammation; and particularly, that this may arise from an obstruction formed by a matter stopping up these vessels: but many difficulties attend this doctrine.
- 1. The opinion seems chiefly to have arisen from the appearance of the blood described in 237., when the separated gluten was considered as a preternatural and morbid matter: but we know very certainly, that this gluten is constantly a constituent part of the human blood, and that it is only a peculiar separation of the parts of the blood that happens in consequence of inflammation, and some other circumstances, which gives occasion to the appearance that was falsely considered as a mark of a morbid lentor in the blood.
- 2. There are no experiments directly in proof of a preternatural lentor prevailing in the mass of blood; nor is there any evidence of certain parts of the blood occasionally acquiring a greater density and force of cohesion than ordinary; neither is there any proof of the denser or more coherent parts being present in the mass of blood in such

greater proportion than usual, as to occasion a dangerous spissitude. The experiments of Dr Browne Langrish on this subject afford no conclusion, having been made on certain parts of the blood separated from the rest, without attending to the circumstances of blood-letting, which very much alter the state of separation and concretion of the blood drawn out of the veins.

3. The supposition of a preternatural lentor or viscidity of the blood is not well founded; for it is probable, that nature has specially provided against a state of the fluids so incompatible with the exercise of the most important functions of the animal economy. While motion continues to prevent any separation of parts, and heat continues to preserve the fluidity of the more viscid, there seems to be always so large a proportion of water present as to give a sufficient fluidity to the whole. I must own that this is not absolutely conclusive; but I still repeat it, as giving a probability to the general argument.

4. In the particular case of inflammation, there are several circumstances which render it probable that the blood

is then more fluid than usual.

5. I presume that no such general lentor, as Boerhaave and his disciples have supposed, does ever take place; because, if it did, it must show more considerable effects than

commonly appear.

6. Besides the supposition of an obstructing lentor, physicians have supposed that an obstruction may be formed by an impermeable matter of another kind, and that such an obstruction may also be the cause of inflammation. This supposition is what is well known in the schools under the title of an error loci; but it is an opinion that I cannot find to be at all probable: for the motion of the blood in the extreme vessels is so weak and slow, as readily to admit a retrograde course of it; and therefore, if a particle of blood should happen to enter a vessel whose branches will not al-

low of its passage, it will be moved backwards, till it meet with a vessel fit for transmitting it; and the frequent ramifications and anastomoses of the extreme arteries are very favourable to this. I must own indeed that this argument is not absolutely conclusive; because I allow it to be pretty certain, that an error loci does actually upon occasion happen: but for the reasons I have given, it is probable that it seldom happens, and is therefore rarely the cause of inflammation; or if it be, that it is not merely by the obstruction that it produces; as, among other reasons, I conclude particularly from the following argument.

- 7. Though an obstruction should be supposed to take place, it will not be sufficient for producing the effects, and exhibiting the phenomena that appear in inflammation. The theory that has been commonly employed on this occasion is by no means satisfying; and in fact it appears, from many observations and experiments, that considerable obstructions may be formed, and may subsist, without producing the symptoms of inflammation.
- 242. Obstruction, therefore, from a matter stopping up the vessels, (Gaub. Pathol. 249. i.), is not to be considered as the primary cause of inflammation; but, at the same time, it is sufficiently probable, that some degree of obstruction does take place in every case of inflammation. The distention, pain, redness, and tumour attending inflammation, are to be explained only by supposing, that the extremities of the arteries do not readily transmit the unusual quantity of blood impelled into them by the increased action in the course of these vessels. Such an obstruction may be supposed to happen in every case of an increased impetus of the blood; but it is probable, that in the case of inflammation, there is also a preternatural resistance to the free passage of the fluids.
- 243. From the doctrine of fever, we are led to believe, that an increased action of the heart and arteries is not sup-

ported, for any length of time, by any other means than a spasm affecting the extreme vessels; and that the same spasm takes place in inflammation, seems likely, because that every considerable inflammation is introduced by a cold stage, and is accompanied with that and other circumstances of pyrexia. It seems also probable, that something analogous to this occurs even in the case of those inflammations which appear less considerable, and to be purely topical.

244. From all this, the nature of inflammation may, in many cases, be explained in the following manner: Some causes of inequality in the distribution of the blood may throw an unusual quantity of it upon particular vessels, to which it must necessarily prove a stimulus. But further, it is probable, that to relieve the congestion, the vis medicatrix natura increases still more the action of these vessels; and which, as in all other febrile diseases, it effects by the formation of a spasm on their extremities.

245. A spasm of the extreme arteries, supporting an increased action in the course of them, may therefore be considered as the proximate cause of inflammation; at least, in all cases not arising from direct stimuli applied; and even in this case, the stimuli may be supposed to produce a

spasm of the extreme vessels.

246. That, in inflammation, there is the concurrence of a constriction of the extreme vessels, with an increased action in the other parts of them, seems probable, from the consideration of Rheumatism. This is a species of inflammation which is often manifestly produced, either by cold applied to over-distended vessels, or by causes of an increased impetus, and over-distention in vessels previously constricted: Hence the disease especially appears at seasons liable to frequent and considerable vicissitudes of heat and cold.

To this we may add, that the parts of the body most fre-

quently affected with inflammation, are those exposed both to over-distention, from a change in the distribution of the fluids, and, at the same time, to the immediate action of cold: Hence quinsies and pneumonic inflammations are more frequent than any others.

247. That a spasm of the extreme vessels takes place in inflammation, is to be further presumed from what is at the same time the state of the whole arterial system. In every considerable inflammation, though arising in one part only, an affection is communicated to the whole system, in consequence of which an inflammation is readily produced in other parts beside that first affected. This general affection is well known among physicians, under the name of the Diathesis Phlogistica. It appears most commonly in persons of the most rigid fibres; is often manifestly induced by the tonic or astringent powers of cold; is increased by all tonic and stimulant powers applied to the body; is always attended with a hardness of the pulse; and is most effectually taken off by the relaxing power of blood-letting. From these circumstances, it seems probable, that the diathesis phlogistica consists in an increased tone, or contractility, and perhaps in an increased contraction of the muscular fibres of the whole arterial system. Such a state of the system seems often to arise, and subsist for some time, without the apparent inflammation of any particular part; but such a state of the system renders it likely, that a spasm may, at the same time, readily arise in any of the extreme vessels, and a particular inflammation be there produced. It does, however, appear also, that the general diathesis frequently arises from inflammation begun in a particular part.

248. I have thus endeavoured, in the case of inflammation, to explain the state of the whole system, as well as that of the part more particularly affected. The latter I have considered as when in its first formation; but after it has

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subsisted for some time, various changes take place in the part affected, and of these I must now take notice.

SECT. II.—Of the Terminations of Inflammation.

249. If an inflammation be cured while the state and texture of the part remain entire, the disease is said to be terminated by RESOLUTION.

This happens when the previous congestion and spasm have been in a moderate degree, and the increased impetus of the blood has been sufficient to overcome the spasm, to dilate the vessels, and to remove the congestion, so that the

part is restored to its ordinary and healthy state.

A resolution takes place also when the increased impetus of the fluids has produced an increased exhalation into the adjoining cellular texture, or an increased excretion in some neighbouring part, and has thereby relaxed the spasm, and relieved the congestion, in the vessels of the part more particularly affected.

Lastly, a resolution may take place, when the increased impetus of the blood, in the whole system, occasions an evacuation, which, though in a distant part, may prove sufficient to take off the phlogistic diathesis of the whole system, and thereby relieve the congestion and spasm of the parti-

cular part affected by inflammation.

250. The tumour which appears in inflammation may be imputed in part to the congestion of fluids in their proper vessels, but is owing chiefly to an effusion of matter into the adjoining cellular texture: and, accordingly, tumours seldom appear but in parts adjoining to a lax cellular texture. If, in this case, the matter effused be only a larger quantity of the ordinary exhaling fluid, this, when the free circulation in the vessels is restored, will be readily absorbed, and the state of the part will become the same as before. But

if the increased impetus of the blood in an inflamed part dilate the exhalant vessels to such a degree, that they pour out an entire serum, this will not be so readily reabsorbed; and, from the experiments of Sir John Pringle, and especially from those of Mr Gaber, (Miscell. Taurin. vol. 2.), we learn, that the serum, under stagnation, may suffer a particular change, by having the gluten present in it changed into a white, opaque, moderately viscid, mild liquor, which we name Pus. When this change takes place in the inflamed part, as it is at the same time attended with an abatement of the redness, heat, and pain, which before distinguished the inflammation, so the disease is said to be terminated by Supruration, and an inflamed part, containing a collection of pus, is called an ABSCESS.

251. In inflammation, the tendency of it to suppuration may be discovered, by the long continuance of the inflammation, without the symptoms of resolution; by some remission of the pain of distention; by the pain becoming of a throbbing kind, more distinctly connected with the pulsation of the arteries; by the pulse of the arteries being fuller and softer; and often, by the patient's being frequently affected with cold shiverings. The period at which this takes place is not determined, but may be sometimes sooner, sometimes later. When the tendency is determined, the time necessary to a complete suppuration is different in different cases.

When pus is completely formed, the pain in the part entirely ceases, and a weight is felt in it. If the collection be formed immediately under the skin, the tumour becomes pointed, the part becomes soft, and the fluctuation of the fluid within can commonly be perceived; while, at the same time, for the most part, the redness of the skin formerly prevailing is very much gone.

252. In abscesses, while the pus is formed of one part of the matter which had been effused, the other and thinner

parts are reabsorbed, so that, in the abscess, when opened, a pus alone appears. This pus, however, is not the converted gluten alone; for the conversion of this being the effect of a particular fermentation, which may affect the solid substance of the part, and perhaps every solid of animal bodies; so it most readily, and particularly affects the cellular texture, eroding much of it, which thereby becomes a part of the pus. It generally happens also, that some of the smaller red vessels are eroded, and thereby some red blood often appears mixed with the pus in abscesses. Upon the whole, the internal surface of an abscess is to be considered as an ulcerated part.

253. This account of suppuration explains why an abscess, when formed, may either spread into the cellular texture of the neighbouring parts; or, by eroding the incumbent teguments, be poured out upon the surface of the body, and produce an open ulcer.

254. We have here given the idea of an abscess as a collection of matter following inflammation; but the term has been applied to every collection of matter effused, and changed by stagnation in an inclosed cavity.

The matter of abscesses, and of the ulcers following them, is various, according to the nature of what is effused, and which may be,

- 1. A matter thinner than serum.
- 2. An entire and pure serum.
- 3. A quantity of red globules.
- 4. A matter furnished by particular glands seated in the part.

5. A mixture of matters from different sources, changed by peculiar fermentation.

It is the second only which affords a proper pus; the effusion whereof, whether in suppurating parts or ulcers, seems to be the peculiar effect of an inflammatory state of the vessels; and, for this reason it is, that, when ulcers do not produce a proper pus, a circumstance always absolutely necessary to their healing, we, in many cases, bring the ulcers to a state of proper suppuration, by the application of stimulants exciting inflammation, such as balsams, mercury, copper, &c.

255. When the matter effused into the cellular texture of an inflamed part is tainted with a putrid ferment, this produces, in the effused matter, a state approaching more or less to that of putrefaction. When this is in a moderate degree, and affects only the fluids effused, with the substance of the cellular texture, the part is said to be affected with Gangrene; but if the putrefaction affect also the vessels and muscles of the part, the disease is said to be a Sphace-lus.

256. A gangrene, and its consequences, may arise from a putrid ferment diffused in the mass of blood, and poured out with the serum effused, which it operates upon more powerfully while the serum is stagnant, and retained in the heat of the body: But it may also arise from the peculiar nature of the matter effused being disposed to putrefaction; as particularly seems to be the case of the red globules of the blood effused in a large quantity. In a third manner also, gangrene seems frequently to arise from the violent excitement of the inflammation destroying the tone of the vessels; whereby the whole fluids stagnate, and run into putrefaction, which taking place in any degree, destroys still further the tone of the vessels, and spreads the gangrene.

257. In inflammation, the tendency to gangrene may be apprehended from an extreme violence of pain and heat in the inflamed part, and from a great degree of pyrexia attending the inflammation.

The actual coming on of gangrene may be perceived, by the colour of the inflamed part changing from a clear to a dark red; by blisters arising upon the part; by the part becoming soft, flaccid, and insensible; and by the ceasing of all pain, while these appearances take place.

As the gangrene proceeds, the colour of the part becomes livid, and by degrees quite black; the heat of the part entirely ceases; the softness and flaccidity of the part increase; it loses its consistence, exhales a cadaverous smell, and may then be considered as affected with sphacelus.

258. Gangrene is thus a third manner in which inflammation terminates: and the schools have commonly marked a fourth termination of inflammation; which is by a scirrhus, or an indolent hardness of the part formerly affected with inflammation. This however is a rare occurrence, and does not seem to depend so much upon the nature of inflammation, as upon the circumstances of the part affected. It is in glandular parts chiefly that scirrhosity is observed; and it is probably owing to the parts readily admitting a stagnation of the fluids. I have observed that inflammation seldom induces scirrhus, but that this more commonly arises from other causes; and when inflammation supervenes, which it is sooner or later apt to do, it does not so commonly increase as change the scirrhosity into some kind of abscess. From these considerations, it does not seem necessary to take any further notice of scirrhus as a termination of inflammation.

259. There are, however, some other terminations of inflammation not commonly taken notice of, but now to be mentioned.

One is, by the effusion of a portion of the entire mass of blood, either by means of rupture or of anastomosis, into the adjoining cellular texture. This happens especially in inflammations of the lungs, where the effused matter, by compressing the vessels, and stopping the circulation, occasions a fatal suffocation: and this is perhaps the manner in which pneumonic inflammation most commonly proves fatal.

- 260. Another kind of termination is, that of certain inflammations on the surface of the body, when there is poured out under the cuticle a fluid, which being too gross to pass through its pores, therefore separates it from the skin, and raises it up into the form of a vesicle containing the effused fluid, and by which effusion the previous inflammation is taken off.
- 261. Beside these already mentioned, I believe there is still another manner in which inflammation terminates. When the internal parts are affected with inflammation, there seems to have been almost always upon their surface an exudation, which appears partly as a viscid concretion upon their surface, and partly as a thin serous fluid effused into the cavities in which the inflamed viscera are placed. Though we have become acquainted with these appearances only, as very constantly accompanying those inflammations which have proved fatal, it is however probable that like circumstances may have attended those which were terminated by resolution, and may have contributed to that event. It is in favour of this supposition that there are instances of pneumonic inflammation terminating in a hydrothorax.

Sect. IV.—Of the Remote Causes of Inflammation.

- 262. The remote causes of inflammation may be reduced to five heads.
- 1. The application of stimulant substances, among which are to be reckoned the action of fire, or burning.
- 2. External violence operating mechanically in wounding, bruising, compressing, or overstretching the parts.
- 3. Extraneous substances, lodged in any part of the body, irritating by their chemical acrimony or mechanical form, or compressing by their bulk or gravity.
- 4. Cold, in a certain degree, not sufficient immediately to produce gangrene.

5. An increased impetus of the blood determined to a particular part.

It will not be difficult to understand how these remote causes, singly, or in concurrence, produce the proximate cause of inflammation.

263. It does not appear, that in different cases of inflammation, there is any difference in the state of the proximate cause, except in the degree of it; and though some difference of inflammation may arise from the difference of the remote causes, yet this is not necessary to be taken notice of here; because the different appearances which attend different inflammations may be referred, for the most part, to the difference of the part affected, as will appear when we shall consider the several genera and species marked in the Nosology. When I come to treat of these, I shall find a more proper occasion for taking notice of the different states of the proximate, or of the differences of the remote cause, than by treating of them in general here.

SECT. V.—Of the Cure of Inflammation.

264. The indications of cure in inflammation are different, according as it may still be capable of resolution, or may have taken a tendency to the several other terminations above mentioned. As the tendency to these terminations is not always immediately evident, it is always proper, upon the first appearance of inflammation, to attempt the cure of it by resolution. For this purpose, the indications of cure are,

1. To remove the remote causes, when they are evident, and continue to operate.

2. To take off the phlogistic diathesis affecting either the

whole system, or the particular part.

3. To take off the spasm of the particular part, by remedies applied either to the whole system, or to the part itself.

265. The means of removing the remote causes will readily occur, from considering the particular nature and circumstances of the different kinds. Acrid matters must be removed, or their action must be prevented, by the application of correctors or demulcents. Compressing and overstretching powers must be taken away; and, from their several circumstances, the means of doing so will be obvious.

266. The means of taking off the phlogistic diathesis of the system are the same with those for moderating the violence of reaction in fever, which are mentioned and treated of from 127. to 149., and therefore need not be repeated here. I only observe, that in the use of those remedies, there is less occasion for any reserve than in many cases of fever; and more particularly, that topical bleedings are here particularly indicated and proper.

267. The means of taking off the spasm of the particular part are nearly the same as those mentioned above, for taking off the spasm of the extreme vessels in the case of fever, and which are treated of from 150. to 200. Only it is to be observed here, that some of these are here especially indicated, and that some of them are to be directed more particularly to the part especially affected; the management of which will be more properly considered when we shall treat of particular inflammations.

268. When a tendency to suppuration (251.) is distinctly perceived, as we suppose it to depend upon the effusion of a fluid which cannot be easily reabsorbed, so it becomes necessary that this fluid be converted into pus, as the only natural means of obtaining its evacuation: and as the effusion is perhaps seldom made without some rupture of the vessels, to the healing of which a pus is absolutely necessary; so, in the case of a tendency to suppuration, the indication of cure always is, to promote the production of a perfect pus as quickly as possible.

269. For this purpose, various remedies, supposed to possess a specific power, have been proposed; but I can perceive no such power in any of them; and, in my opinion, all that can be done is, to favour the suppuration by such applications as may support a proper heat in the part, as by some tenacity may confine the perspiration of the part, and as, by an emollient quality, may weaken the cohesion of the teguments, and favour their erosion.

270. As, in the case of certain effusions, a suppuration is not only unavoidable, but desirable, it may be supposed that most of the means of resolution formerly mentioned should be avoided; and accordingly our practice is commonly so directed. But, as we observe, on the one hand, that a certain degree of increased impetus, or of the original circumstances of inflammation, is requisite to produce a proper suppuration; so it is then especially necessary to avoid those means of resolution that may diminish too much the force of the circulation. And as, on the other hand, the impetus of the blood, when violent, is found to prevent the proper suppuration; so, in such cases, although a tendency to suppuration may have begun, it may be proper to continue those means of resolution which moderate the force of the circulation.

With respect to the opening of abscesses, when complete-

ly formed, I refer to the writings on surgery.

271. When an inflammation has taken a tendency to gangrene, that event is to be prevented by every possible means; and these must be different, according to the nature of the several causes occasioning that tendency, as may be understood from what has been already said of them. After a gangrene has, in some degree, taken place, it can be cured only by the separation of the dead from the living parts. This, in certain circumstances, can be performed by the knife, and always most properly, when it can be so done.

In other cases, it can be done by exciting a suppuratory inflammation on the verge of the living part, whereby its cohesion with the dead may be every where broken off, so that the latter may fall off by itself. While this is doing, it is proper to prevent the further putrefaction of the part, and its spreading wider. For this purpose, various antiseptic applications have been proposed; but it appears to me, that, while the teguments are entire, these applications can hardly have any effect; and, therefore, that the fundamental procedure must be to scarify the part, so as to reach the living substance, and, by the wounds made there, to excite the suppuration required. By the same incisions, also, we give access to antiseptics, which may both prevent the progress of the putrefaction in the dead, and excite the inflammation necessary on the verge of the living part.

272. When the gangrene proceeds from a loss of tone, and when this, communicated to the neighbouring parts, prevents that inflammation which, as I have said, is necessary to the separation of the dead part from the living, it will be proper to obviate this loss of tone by tonic medicines given internally; and, for this purpose, the Peruvian bark has been found to be especially effectual. That this medicine operates by a tonic power, I have endeavoured to prove above (214.); and from what is said in 215., the limitations to be observed in employing it may also be learned. When the gangrene arises from the violence of inflammation, the bark may not only fail of proving a remedy, but may do harm; and its power as a tonic is especially suited to those cases of gangrene which proceed from an original loss of tone, as in the case of palsy and œdema; or to those cases of inflammation where a loss of tone takes place, while the original inflammatory symptoms are removed.

273. The other terminations of inflammation, either do not admit of any treatment, except that of preventing them

by the means of resolution, or they belong to a treatise of surgery rather than to this place.

Having thus, therefore, delivered the general doctrine, I proceed now to consider the particular genera and species of inflammation.

It has been hinted above (263.), that the difference of inflammation arises chiefly from the difference of the part affected. I have, therefore, arranged them, as they are CUTANEOUS, VISCERAL, OF ARTICULAR; and in this order they are now to be considered.

CHAP. II.

OF INFLAMMATION, MORE STRICTLY CUTANEOUS.

274. Cutaneous inflammations are of two kinds, commonly distinguished by the names of Phlegmon and Erysipelas.

Of the latter there are two cases, which ought to be distinguished by different appellations. When the disease is an affection of the skin alone, and very little of the whole system, or when the affection of the system is only symptomatical of the external inflammation, I shall give the disease the name of ERYTHEMA; but when the external inflammation is an exanthema, and symptomatical of an affection of the whole system, I shall then name the disease ERYSIPELAS.

275. It is the erythema only that I am to consider here. For the distinction between Erythema and Phlegmon, I

For the distinction between Erythema and Phiegmon, I have formerly referred to the characters given of them in our Nosology. See Synops. Nosolog. Meth. vol. ii. p. 5. gen. vii. spec. 1. and 2. But I think it proper now to deliver

the characters of them more fully and exactly here, as follows:

A Phlegmon is an inflammatory affection of the skin, with a swelling, rising generally to a more considerable eminence in the middle of it; of a bright red colour; both the swelling and colour being pretty exactly circumscribed; the whole being attended with a pain of distention, often of a stounding or throbbing kind, and frequently ending in suppuration.

An Erythema, Rose, or St Anthony's Fire, is an inflammatory affection of the skin, with hardly any evident swelling; of a mixed and not very bright red colour, readily disappearing upon pressure, but quickly returning again; the redness of no regular circumscription, but spreading unequally, and continuing almost constantly to spread upon the neighbouring part, with a pain like to that from burning; producing blisters, sometimes of a small, sometimes of a larger size; and always ending in a desquamation of the scarfskin, sometimes in gangrene.

This subject I am not to prosecute here, as properly belonging to surgery, the business of which I am seldom to enter upon in this work; and shall therefore observe only as necessary here, that the difference of these appearances seems to depend on the different seat of the inflammation. phlegmon, the inflammation seems to affect especially the vessels on the internal surface of the skin communicating with the lax subjacent cellular texture; whence a more copious effusion, and that of serum convertible into pus, takes place. In the erythema, the inflammation seems to have its seat in the vessels on the external surface of the skin, communicating with the rete mucosum, which does not admit of any effusion, but what separates the cuticle, and gives occasion to the formation of a blister, while the smaller size of the vessels admits only of the effusion of a thin fluid, very seldom convertible into pus.

Beside these differences in the circumstances of these two kinds of inflammation, it is probable that they also differ with respect to their causes. Erythema is the effect of all kinds of acrids externally applied to the skin; and, when arising from an internal cause, it is from an acrimony poured out on the surface of the skin under the cuticle. In the phlegmon, an acrimony is not commonly evident.

276. These differences in the seat and cause of the phlegmon and erythema being admitted, it will be evident, that when any erythema affects any internal part, it can take place in those only whose surfaces are covered with an epithelion, or membrane analogous to the cuticle.

277. The same distinction between the seat and causes of the two diseases will, as I judge, readily explain what has been delivered by practical writers with respect to the cure of these different cutaneous inflammations. But I shall not, however, prosecute this here, for the reason given above (275.); and, for the same reason, shall not say any thing of the variety of external inflammation, that might otherwise be considered here.

CHAP. III.

OF OPHTHALMIA, OR INFLAMMATION OF THE EYE.

G. VIII. OPHTHALMIA.—Rubor et dolor oculi; lucis intolerantia; plerumque cum lachrymatione.

Species I. Ophthalmia (membranarum) in tunicâ adnatâ, et ei subjacentibus membranis, sive tunicis oculi.

Species II. Ophthalmia (tarsi) cum tumore, erosione, et exudatione glutinosa tarsi palpebrarum.

278. The inflammation of the eye may be considered as of two kinds; according as it has its seat in the membranes of the ball of the eye, when I would name it Ophthalmia Membranarum; or as it has its seat in the sebaceous glands placed in the tarsus, or edges of the eyelids, in which case it may be termed Ophthalmia Tarsi.

These two kinds are very frequently combined together, as the one may readily excite the other; but they are still to be distinguished according as the one or the other may happen to be the primary affection, and properly as they often arise from different causes.

279. The inflammation of the membranes of the eye affects especially, and most frequently the adnata, appearing in a turgescence of its vessels; so that the red vessels, which are naturally there, become not only increased in size, but there appear many more than did in a natural state. This turgescence of the vessels is attended with pain, especially upon the motion of the ball of the eye; and this,

like every other irritation applied to the surface of the eye, produces an effusion of tears from the lachrymal gland.

This inflammation commonly, and chiefly, affects the adnata spread on the anterior part of the bulb of the eye; but usually spreads also along the continuation of that membrane on the inside of the palpebræ; and, as that is extended on the tarsus palpebrarum, the excretories of the sebaceous glands also opening there are frequently affected. When the affection of the adnata is considerable, it is frequently communicated to the subjacent membranes of the eye, and even to the retina itself, which thereby acquires so great a sensibility, that the slightest impression of light becomes painful.

280. The inflammation of the membranes of the eye is in different degrees, according as the adnata is more or less affected, or according as the inflammation is either of the adnata alone, or of the subjacent membranes also; and upon these differences, different species have been established, and different appellations given to them. But I shall not, however, prosecute the consideration of these, being of opinion that all the cases of the Ophthalmia membranarum differ only in degree, and are to be cured by remedies of

the same kind more or less employed.

The remote causes of Ophthalmia are many and various;

1. External violence, by blows, contusions, and wounds, applied to the eyes; and even very slight impulses applied, whilst the eyelids are open, to the ball of the eye itself, are sometimes sufficient for the purpose.

2. Extraneous bodies introduced under the eye-lids, either of an acrid quality, as smoke and other acrid vapours, or of a bulk sufficient to impede the free motion of the eye-

lids upon the surface of the eye-ball.

3. The application of strong light, or even of a moderate light long continued.

- 4. The application of much heat, and particularly of that with moisture.
 - 5. Much exercise of the eyes in viewing minute objects.
 - 6. Frequent intoxication.
 - 7. Irritation from other and various diseases of the eyes.
- 8. An acrimony prevailing in the mass of blood, and deposited in the sebaceous glands on the edges of the eyelids.
- 9. A change in the distribution of the blood, whereby either a more than usual quantity of blood, and with more than usual force, is impelled into the vessels of the head, or whereby the free return of the venous blood from the vessels of the head is interrupted.
- 10. A certain consent of the eyes with the other parts of the system, whereby, from a certain state of these parts, either a simultaneous, or an alternating affection of the eyes is produced.
- 281. The proximate cause of Ophthalmia is not different from that of inflammation in general; and the different circumstances of Ophthalmia may be explained by the difference of its remote causes, and by the different parts of the eye which it happens to affect. This may be understood from what has been already said: and I shall now therefore proceed to consider the Cure.
- 282. In the cure of Ophthalmia, the first attention will be always due to the removing of the remote causes; and the various means necessary for this purpose will be directed by the consideration of those causes enumerated above.

The Ophthalmia membranarum requires the remedies proper for inflammation in general; and when the deeperseated membranes are affected, and especially when a pyrexia is present, large general bleedings may be necessary. But this is seldom the case: as the Ophthalmia, for the most part, is an affection purely local, accompanied with little or

no pyrexia. General bleedings, therefore, from the arm or foot, have little effect upon it; and the cure is chiefly to be obtained by topical bleedings, that is, blood drawn from vessels near the inflamed part; and opening the jugular vein, or the temporal artery, may be considered as in some measure of this kind. It is commonly sufficient to apply a number of leeches round the eye; and it is perhaps better still to draw blood from the temples by cupping and scarifying. In many cases, a very effectual remedy is, that of scarifying the internal surface of the inferior eye-lid; and more so still, is cutting the turgid vessels upon the adnata itself.

283. Besides blood-letting, purging, as a remedy suited to inflammation in general, has been considered as peculiarly adapted to inflammations in any of the parts of the head, and therefore to Ophthalmia; and it is sometimes useful; but, for the reasons given before with respect to general bleeding, purging in the case of Ophthalmia does not prove useful in any degree in proportion to the evacuation excited.

284. For relaxing the spasm in the part, and taking off the determination of the fluids to it, blistering near the part

has commonly been found useful.

285. Electrical sparks taken from the eye will often suddenly discuss the inflammation of the adnata; but the effect is seldom permanent, and even a frequent repetition seldom

gives an entire cure.

286. Ophthalmia, as an external inflammation, admits of topical applications. All those, however, that increase the heat and relax the vessels of the part, prove commonly hurtful; and the admission of cool air to the eye, the proper application of cold water immediately to the ball of the eye, and the application of various cooling and astringent medicines, which at the same time do not produce much irritation, prove generally useful: even spiritous liquors, employed in moderate quantity, have often been of service.

287. In the cure of Ophthalmia, much care is requisite to avoid all irritation, particularly that of light; and the only safe and certain means of doing this, is by confining the patient to a very dark chamber.

288. These are the remedies of the Ophthalmia membranarum; and in the Ophthalmia tarsi, so far as it is produced by the Ophthalmia membranarum, the same remedies
may be necessary. As however the Ophthalmia tarsi may
often depend upon an acrimony deposited in the sebaceous
glands of the part, so it may require various internal remedies according to the nature of the acrimony in fault; for
which I must refer to the consideration of scrofula, syphilis,
or other diseases with which this Ophthalmia may be connected: and when the nature of the acrimony is not ascertained, certain remedies, more generally adapted to the evacuation of acrimony, such, for instance, as mercury, may be
employed.

289. In the Ophthalmia tarsi, it almost constantly happens that some ulcerations are formed on the tarsus. These require the application of mercury or copper, either of which may by itself sometimes entirely cure the affection; and these may even be useful when the disease depends upon a fault of the whole system.

290. Both in the Ophthalmia membranarum, and in the Ophthalmia tarsi, it is necessary to obviate that gluing or sticking together of the eye-lids which commonly happens in sleep; and this may be done by insinuating a little of any mild unctuous medicine of some tenacity between the eye-lids before the patient shall go to sleep.

CHAP. IV.

OF PHRENSY, OR PHRENITIS.

G. IX. Phrenitis.—Pyrexia vehemens; dolor capitis; rubor faciei et oculorum; lucis et soni intolerantia; pervigilium; delirium ferox vel typhomania:

291. This disease is an inflammation of the parts contained in the cavity of the cranium, and may affect either the membranes of the brain, or the substance of the brain itself. Nosologists have apprehended that these two cases might be distinguished by different symptoms, and therefore by different appellations: but this does not seem to be confirmed by observation and dissection; and therefore I shall treat of both cases under the title of Phrensy, or Phrenitis.

292. An idiopathic phrensy is a rare occurrence, a sympathic more frequent; and the ascertaining either the one or the other is, upon many occasions, difficult. Many of the symptoms by which the disease is most commonly judged to be present, have appeared, when, from certain considerations, it was presumed, and even from dissection it appeared, that there had been no internal inflammation; and, on the other hand, dissections have shown that the brain had been inflamed, when few of the peculiar symptoms of phrensy had before appeared.

293. The symptoms by which this disease may be most certainly known are, a vehement pyrexia, a violent deep-seated headach, a redness and turgescence of the face and eyes, an impatience of light or noise, a constant watching,

and a delirium impetuous and furious. Some nosologists have thought these symptoms peculiar to an inflammation of the membranes, and that the inflammation of the substance of the brain was to be distinguished by some degree of coma attending it. It was for this reason that in the Nosology I added the Typhomania to the character of Phrenitis: but, upon farther reflection, I find no proper foundation for this; and, if we pass from the characters above delivered, there will be no means of fixing the variety that occurs.

I am here, as in other analogous cases, of opinion, that the symptoms above mentioned of an acute inflammation, always mark inflammations of membranous parts: and that an inflammation of the paronchyma or substance of viscera, exhibits, at least commonly, a more chronic affection.

294. The remote causes of phrensy are all those which directly stimulate the membranes, or substance of the brain, and particularly all those which increase the impetus of the blood in the vessels of the brain. Among these the exposure of the naked head to the direct rays of a very warm sun is a frequent cause. The passions of the mind, and certain poisons, are amongst the remote causes of phrensy; but in what manner they operate, is not well understood.

295. The cure of phrensy is the same with that of inflammation in general; but in phrensy the most powerful remedies are to be immediately employed. Large and repeated blood-letting is especially necessary; and the blood should be drawn from vessels as near as possible to the part affected. The opening of the temporal artery has been recommended, and with some reason: but the practice is attended with inconvenience; and I apprehend, that opening the jugular veins may prove more effectual; but, at the same time, it will be generally proper to draw blood from the temples by cupping and scarifying.

296. It is probable that purging, as it may operate by re-

vulsion, may be of more use in this than in some other inflammatory affections.

For the same purpose of revulsion, warm pediluvia are a remedy; but at the same time somewhat ambiguous. The taking off the force of the blood in the vessels of the head by an erect posture, is generally useful.

297. Shaving of the head is always proper and necessary for the admission of other remedies. Blistering is commonly useful in this disease, but chiefly when applied near to the part affected.

298. Every part of the antiphlogistic regimen is here necessary, and particularly the admission of cold air. Even cold substances applied close to the head have been found safe and highly useful; and the application of such refrigerants as vinegar, is certainly proper.

299. It appears to me certain, that opiates are hurtful in every inflammatory state of the brain; and it is to be observed, that from the ambiguity mentioned in 292, the accounts of practitioners, with regard to the juvantia and lædentia in this disease, are of very uncertain application.

CHAP. V.

OF THE QUINSY, OR CYNANCHE.

G. X. CYNANCHE.—Pyrexia aliquando typhodes; rubor et dolor faucium; deglutitio et spiratio difficiles, cum angustiæ in faucibus sensu.

300. This name is applied to every inflammation of the internal fauces; but these inflammations are different, accord-

ing to the part of the fauces which may be affected, and according to the nature of the inflammation. In the Nosology, therefore, after giving the character of the Cynanche as a genus, I have distinguished five different species, which must here likewise be separately considered.

Sect. I.—Of the Cynanche Tonsillaris.

Species I. Cynanche (tonsillaris) membranam fuucium mucosam, et præcipue tonsillas, tumore et rubore afficiens, cum febre synochâ.

- 301. This is an inflammation of the mucous membrane of the fauces, affecting especially that congeries of mucous follicles which form the tonsils, and spreading from thence along the velum and uvula, so as frequently to affect every part of the mucous membrane.
- 302. The disease appears by some tumour, sometimes considerable, and by a redness of the parts; is attended with a painful and difficult deglutition; with a pain sometimes shooting into the ear; with a troublesome clamminess of the mouth and throat; with a frequent, but difficult excretion of mucus; and the whole is accompanied with a pyrexia.
- 303. This species of quinsy is never contagious. It terminates frequently by resolution, sometimes by suppuration, but hardly ever by gangrene: although in this disease some sloughy spots, commonly supposed to be forerunners of gangrene, sometimes appear upon the fauces.
- 304. This disease is commonly occasioned by cold externally applied, particularly about the neck. It affects especially the young and sanguine, and a disposition to it is often acquired by habit; so that from every considerable application of cold to any part of the body, this disease is readily induced. It occurs especially in spring and autumn,

when vicissitudes of heat and cold frequently take place. The inflammation and tumour are commonly at first most considerable in one tonsil; and afterwards, abating in that, increase in the other.

305. In the cure of this inflammation, some bleeding may be proper; but large general bleedings will seldom be necessary. The opening of the ranular veins seems to be an insignificant remedy, and leeches set upon the external fauces are of more efficacy.

306. At the beginning of the disease, full vomiting has

been frequently found to be of great service.

307. This inflammation may be often relieved by moderate astringents, and particularly by acids applied to the inflamed parts. In many cases, however, nothing has been found to give more relief than the vapour of warm water received into the fauces by a proper apparatus.

308. The other remedies of this disease are rubefacient or blistering medicines, applied externally to the neck; and with these, the employment of antiphlogistic purgatives, as well as every part of the antiphlogistic regimen, excepting the application of cold.

309. This disease, as we have said, often terminates by resolution, frequently accompanied with sweating; which is

therefore to be prudently favoured and encouraged.

310. When this disease shall have taken a tendency to suppuration, nothing will be more useful than the frequent taking into the fauces the steam of warm water. When the abscess is attended with much swelling, if it break not spontaneously, it should be opened by a lancet: and this does not require much caution, as even the inflammatory state may be relieved by some scarification of the tonsils. I have never had occasion to see any case requiring bronchotomy.

SECT. II.—Of the Cynanche Maligna.

- Sp. 2. Cynanche (maligna) tonsillas et membranam faucium mucosam afficiens tumore, rubore, et crustis mucosis coloris albescentis vel cineritii, serpentibus, et ulcera tegentibus; cum febre typhode et exanthematis.
- 311. This is a contagious disease, seldom sporadic, and commonly epidemic. It attacks persons of all ages, but more commonly those in a young and infant state. It attacks persons of every constitution, when exposed to the contagion, but most readily the weak and infirm.
- 312. This disease is usually attended with a considerable pyrexia; and the symptoms of the accession of this, such as frequent cold shiverings, sickness, anxiety, and vomiting, are often the first appearances of the disease. About the same time, a stiffness is felt in the neck, with some uneasiness in the internal fauces, and some hoarseness of the voice. The internal fauces, when viewed, appear of a deep red colour, with some tumour; but this last is seldom considerable, and deglutition is seldom difficult or painful. Very soon a number of white or ash-coloured spots appear upon the inflamed parts. These spots spread and unite, covering almost the whole fauces with thick sloughs; which falling off, discover ulcerations. While these symptoms proceed in the fauces, they are generally attended with a coryza, which pours out a thin acrid and fetid matter, excoriating the nostrils and lips. There is often also, especially in infants, a frequent purging; and a thin acrid matter flows from the anus, excoriating this and the neighbouring parts.
- 313. With these symptoms, the pyrexia proceeds with a small, frequent, and irregular pulse; and there occurs a manifest exacerbation every evening, and some remission in the

mornings. A great debility appears in the animal functions; and the sensorium is affected with delirium, fre-

quently with coma.

314. On the second day, or sometimes later, efflorescences appear upon the skin, which are sometimes in small points hardly eminent; but, for the most part, in patches of a red colour, spreading and uniting so as to cover the whole They appear first about the face and neck, and in the course of some days spread by degrees to the lower extremities. The scarlet redness is often considerable on the hands and extremities of the fingers, which feel stiff and swelled. This eruption is often irregular, as to the time of its appearance, as to its steadiness, and as to the time of its duration. It usually continues four days, and goes off by some desquamation of the cuticle; but neither on its first appearance, nor on its desquamation, does it always produce a remission of the pyrexia, or of the other symptoms.

315. The progress of the disease depends on the state of the fauces and of the pyrexia. When the ulcers on the fauces, by their livid and black colour, by the fetor of the breath, and by many marks of acrimony in the fluids, show a tendency to gangrene, this takes place to a considerable degree; and, the symptoms of a putrid fever constantly increasing, the patient dies, often on the third day, sometimes later, but for the most part before the seventh. The acrimony poured out from the diseased fauces must necessarily, in part, pass into the pharynx, and there spread the infection into the œsophagus, and sometimes through the whole of the alimentary canal, propagating the putrefaction, and often exhausting the patient by a frequent diarrhœa.

The acrid matter poured out in the fauces being again absorbed, frequently occasions large swellings of the lymphatic glands about the neck, and sometimes to such a de-

gree as to occasion suffocation.

It is seldom that the organs of respiration escape entirely unhurt, and very often the inflammatory affection is communicated to them. From dissections, it appears, that, in the cynanche maligna, the larynx and trachea are often affected in the same manner as in the cynanche trachealis; and it is probable, that, in consequence of that affection, the cynanche maligna often proves fatal by such a sudden suffocation as happens in the proper cynanche trachealis; but there is reason to suspect, that upon this subject dissectors have not always distinguished properly between the two diseases.

316. These are the several fatal terminations of the cynanche maligna; but they do not always take place. Sometimes the ulcers of the fauces are of a milder nature; and the fever is more moderate, as well as of a less putrid kind. And when upon the appearance of the efflorescence on the skin, the fever suffers a remission; when the efflorescence continues for three or four days, till it has spread over the whole body, and then ends by a desquamation, giving a further remission of the fever; this often entirely terminates, by gentle sweats, on or before the seventh day; and the rest of the disease terminates in a few days more, by an excretion of sloughs from the fauces, while sleep, appetite, and the other marks of health return.

From what is said in this and the preceding paragraph, the prognostics in this disease may be readily learned.

317. In the cure of this disease, its septic tendency is chiefly to be kept in view. The debility with which it is attended, renders all evacuations by bleeding and purging improper, except in a few instances where the debility is less, and the inflammatory symptoms more considerable. The fauces are to be preserved from the effects of the acrid matter poured out upon them, and are therefore to be frequently washed out by antiseptic gargles or injections; and the septic tendency of the whole system should be guarded

against and corrected by internal antiseptics, especially by the Peruvian bark given in substance from the beginning, and continued through the course of the disease. Emetics, both vomiting and nauseating, prove useful, especially when employed early in the disease. When any considerable tumour occurs, blisters applied externally will be of service, and in any case may be fit to moderate the internal inflammation.

Sect. III.—Of the Cynanche Trachealis.

Sp. 3. Cynanche (trachealis) respiratione difficili, inspiratione strepente, voce raucâ, tussi clangosâ, tumore fere nullo in faucibus apparente, deglutitione parum difficili, et febre synochâ.

318. This name has been given to an inflammation of the glottis, larynx, or upper part of the trachea, whether it affect the membranes of these parts, or the muscles adjoining. It may arise first in these parts, and continue to subsist in them alone; or it may come to affect these parts from the cynanche tonsillaris or maligna spreading into them.

319. In either way it has been a rare occurrence, and few instances of it have been marked and recorded by physicians. It is to be known by a peculiar ringing sound of the voice, by difficult respiration, with a sense of straitening about

320. From the nature of these symptoms, and from the dissection of the bodies of persons who had died of this disease, there is no doubt of its being of an inflammatory nature. It does not, however, always run the course of inflammatory affections, but frequently produces such an obstruction of the passage of the air, as suffocates, and thereby proves suddenly fatal.

321. If we judge rightly of the nature of this disease, it will be obvious, that the cure of it requires the most powerful remedies of inflammation, to be employed upon the very first appearance of the symptoms. When a suffocation is threatened, whether any remedies can be employed to prevent it, we have not had experience to determine.

322. The accounts which books have hitherto given us of inflammations of the larynx, and the parts connected with it, amount to what we have now said; and the instances recorded have almost all of them happened in adult persons; but there is a peculiar affection of this kind happening especially to infants, which till lately has been little taken notice of. Dr Home is the first who has given any distinct account of it; but since he wrote several other authors have taken notice of it, (see Michaelis De angina polyposa sive membranacea, Argentorati, 1778); and have given different opinions with regard to it. Concerning this diversity of opinions, I shall not at present inquire; but shall deliver the history and cure of this disease, in so far as they have arisen from my own observation, from that of Dr Home, and of other skilful persons in this neighbourhood.

323. This disease seldom attacks infants till after they have been weaned. After this period, the younger they are the more they are liable to it. The frequency of it becomes less as children become more advanced; and there are no instances of children above twelve years of age being affected with it. It attacks children of the midland counties, as well as those who live near the sea. It does not appear to be contagious, and its attacks are frequently repeated in the same child. It is often manifestly the effect of cold applied to the body; and therefore appears most frequently in the winter and spring seasons. It very commonly comes on with the ordinary symptoms of a catarrh; but sometimes the peculiar symptoms of the disease show themselves at the very first.

324. These peculiar symptoms are the following: A hoarseness, with some shrillness and ringing sound, both in speaking and coughing, as if the noise came from a brazen tube. At the same time, there is a sense of pain about the larynx, some difficulty of respiration, with a whizzing sound in inspiration, as if the passage of the air were straitened. The cough which attends it is commonly dry, and, if any thing be spit up, it is a matter of a purulent appearance, and sometimes films resembling portions of a membrane. Together with these symptoms, there is a frequency of pulse, a restlessness, and an uneasy sense of heat. When the internal fauces are viewed, they are sometimes without any appearance of inflammation; but frequently a redness, and even swelling, appear; and sometimes in the fauces, there is an appearance of matter like to that rejected by coughing. With the symptoms now described, and particularly with great difficulty of breathing, and a sense of strangling in the fauces, the patient is sometimes suddenly taken off.

325. There have been many dissections made of infants who had died of this disease, and almost constantly there has appeared a preternatural membrane lining the whole internal surface of the upper part of the trachea, and extending in the same manner downwards into some of its ramifications. This preternatural membrane may be easily separated, and sometimes has been found separated in part, from the subjacent proper membrane of the trachea. This last is commonly found entire, that is, without any appearance of erosion or ulceration; but it frequently shows the vestiges of inflammation, and is covered by a matter resembling pus, like to that rejected by coughing; and very often a matter of the same kind is found in the bronchiæ, some-

times in considerable quantity.

326. From the remote causes of this disease; from the catarrhal symptoms commonly attending it; from the pyrexia constantly present with it; from the same kind of preternatural membrane being found in the trachea, when the cynanche maligna is communicated to it; and from the vestiges of inflammation on the trachea, discovered upon dissection, we must conclude, that the disease consists in an inflammatory affection of the mucous membrane of the larynx and trachea, producing an exudation analogous to that found on the surface of inflamed viscera, and appearing partly in a membranous crust, and partly in a fluid resembling pus.

- 327. Though this disease manifestly consists in an inflammatory affection, it does not commonly end either in suppuration or gangrene. The peculiar and troublesome circumstance of the disease seems to consist in a spasm of the muscles of the glottis, which, by inducing a suffocation, prevents the common consequences of inflammation.
- 328. When this disease terminates in health, it is by a resolution of the inflammation, by a ceasing of the spasm of the glottis, by an expectoration of the matter exuding from the trachea, and of the crusts formed there; and frequently it ends without any expectoration, or at least with such only as attends an ordinary catarrh.
- 329. When the disease ends fatally, it is by a suffocation, seemingly, as we have said, depending upon a spasm affecting the glottis; but sometimes, probably, depending upon a quantity of matter filling the bronchiæ.
- 330. As we suppose the disease to be an inflammatory affection, so we attempt the cure of it by the usual remedies of inflammation, and which, for the most part, I have found effectual. Bleeding, both general and topical, has often given immediate relief, and, by being repeated, has entirely cured the disease. Blistering also, near to the part affected, has been found useful. Upon the first attack of the disease, vomiting, immediately after bleeding, seems to be of considerable use, and sometimes suddenly removes the disease. In every stage of the disease, the antiphlogistic

regimen is necessary, and particularly the frequent use of laxative clysters. Though we suppose that a spasm affecting the glottis is often fatal in this disease, I have not found antispasmodic medicines to be of any use.

Sect. IV .- Of the Cynanche Pharyngea.

Sp. 4. Cynanche (pharyngea) cum rubore in imis præsertim faucibus; deglutitione maxime difficili, dolentissimå; respiratione satis commodå, et febre synochå.

331. In the Cynanche Tonsillaris, the inflammation of the mucous membrane often spreads upon the pharynx, and into the beginning of the œsophagus, and thereby renders deglutition more difficult and uneasy: but such a case does not require to be distinguished as a different species from the common cynanche tonsillaris; and only requires that blood-letting and other remedies should be employed with greater diligence than in ordinary cases. We have never seen any case in which the inflammation began in the pharynx, or in which this part alone was inflamed: But practical writers have taken notice of such a case; and to them, therefore, I must refer, both for the appearances which distinguish it, and for the method of cure.

SECT. V .- Of the Cynanche Parotidea.

Sp. 5. Cynanche (parotidea) cum tumore externo parotidum et maxillarium glandularum magno; respiratione et deglutitione parum læsis; febre synochâ plerumque leni.

332. This is a disease known to the vulgar, and among them has got a peculiar appellation, in every country in

Europe; but has been little taken notice of by medical writers. It is often epidemic, and manifestly contagious. It comes on with the usual symptoms of pyrexia, which is soon after attended with a considerable tumour of the external fauces and neck. This tumour appears first as a glandular moveable tumour at the corner of the lower jaw; but the swelling soon becomes uniformly diffused over a great part of the neck, sometimes on one side only, but more commonly on both. The swelling continues to increase till the fourth day: but from that period it declines, and in few days more passes off entirely. As the swelling of the fauces recedes, some tumour affects the testicles in the male sex, or the breasts in the female. These tumours are sometimes large, hard, and somewhat painful; but, in this climate, are seldom either very painful or of long continuance. The pyrexia attending this disease is commonly slight, and recedes with the swelling of the fauces; but sometimes, when the swelling of the testicles does not succeed to that of the fauces, or when the one or the other has been suddenly repressed, the pyrexia becomes more considerable, is often attended with delirium, and has sometimes proved fatal.

333. As this disease commonly runs its course without either dangerous or troublesome symptoms, so it hardly requires any remedies. An antiphlogistic regimen, and avoiding cold, are all that will be commonly necessary. But when, upon the receding of the swellings of the testicles in males, or of the breasts in females, the pyrexia comes to be considerable, and threatens an affection of the brain, it will be proper, by warm fomentations, to bring back the swelling; and by vomiting, bleeding, or blistering, to obviate the consequences of its absence.

CHAP. VI.

OF PNEUMONIA, OR PNEUMONIC INFLAMMATION,

G. XI. PNEUMONIA.—Pyrexia; dolor in quâdam thoracis parte; respiratio difficilis; tussis.

Sp. 1. Pneumonia (peripneumonia) pulsu non semper duro, aliquando molli, dolore thoracis obtuso; respiratione perpetuo difficili, sæpe non nisi trunco corporis erecto exercenda; faciei tumidæ colore purpureo; tussi plerumque humidâ, sæpe cruentâ.

Sp. 2. Pneumonia (pleuritis) pulso duro; dolore, plerumque lateris, pungente, sub inspiratione præsertim aucto; decubitu in latus molesto; tussi dolentissimâ, initio siccâ, postea humidâ, sæpe cruentâ.

Vomica.—Post pneumoniam, resolutione quâdam non terminatam, dyspnæa et tussis perstantes, cum decubitu in latus sanum difficili et febre hecticâ.

EMPYEMA.—Post pneumoniam suppuratione terminatam, sæpe post vomicum, remissio doloris, dum perstant dyspnæa, tussis, decubitus difficilis, et febris hectica, sæpe cum sensu liquoris in pectore fluctuantis et signis hydrothoracis.

334. Under this title I mean to comprehend the whole of the inflammations affecting either the viscera of the thorax, or the membrane lining the interior surface of that cavity: for neither do our diagnostics serve to ascertain exactly the seat of the disease, nor does the difference in the seat of the disease exhibit any considerable variation in the state of the symptoms, nor lead to any difference in the method of cure.

335. Pneumonic inflammation, however various in its seat, seems to me to be always known and distinguished by the following symptoms: Pyrexia, difficult breathing, cough,

and pain in some part of the thorax. But these symptoms are on different occasions variously modified.

- 336. The disease almost always comes on with a cold stage, and is accompanied with the other symptoms of pyrexia; though, in a few instances, the pulse may not be more frequent, nor the heat of the body increased beyond what is natural. Sometimes the pyrexia is from the beginning accompanied with the other symptoms; but frequently it is formed for some hours before the other symptoms become considerable, and particularly before the pain be felt. For the most part, the pulse is frequent, full, strong, hard, and quick; but, in a few instances, especially in the advanced state of the disease, the pulse is weak and soft, and at the same time irregular.
- 337. The difficulty of breathing is always present, and most considerable in inspiration: both because the lungs do not easily admit of a full dilatation, and because the dilatation aggravates the pain attending the disease. The difficulty of breathing is also greater when the patient is in one posture of his body rather than another. It is generally greater when he lies upon the side affected: but sometimes the contrary happens. Very often the patient cannot lie upon either side, finding ease only when lying on his back; and sometimes he cannot breathe easily, except when in somewhat of an erect posture.
- 338. A cough always attends this disease; but, in different cases, is more or less urgent and painful. It is sometimes dry, that is, without any expectoration, especially in the beginning of the disease: but more commonly it is, even from the first, moist, and the matter spit up, various both in consistence and colour; and frequently it is streaked with blood.
- 339. The pain attending this disease is, in different cases, felt in different parts of the thorax, but most frequently in one side. It has been said to affect the right side more fre-

quently than the left; but this is not certain; while, on the other hand, it is certain that the left side has been very often affected. The pain is felt sometimes as if it were under the sternum; sometimes in the back, between the shoulders; and, when in the sides, its place has been higher or lower, more forward or backward: but the place of all others most frequently affected is about the sixth or seventh rib, near the middle of its length, or a little more forward. The pain is often severe and pungent; but sometimes more dull and obtuse, with a sense of weight rather than of pain. It is most especially severe and pungent when occupying the place last mentioned. For the most part it continues fixed in one place; but sometimes shoots from the side to the scapula on one hand, or to the sternum and clavicle on the other.

340. The varying state of symptoms now mentioned, does not always ascertain precisely the seat of the disease. To me it seems probable, that the disease is always seated, or at least begins in some part of the pleura; taking that membrane in its greatest extent, as now commonly understood; that is, as covering not only the internal surface of the cavity of the thorax, but also as forming the mediastinum, and as extended over the pericardium, and over the whole surface of the lungs.

341. There is, therefore, little foundation for distinguishing this disease by different appellations taken from the part which may be supposed to be chiefly affected. The term Pleurisy might with propriety be applied to every case of the disease; and has been very improperly limited to that of inflammation which begins in, and chiefly affects the pleura costalis. I have no doubt that such a case does truly occur; but, at the same time, I apprehend it to be a rare occurrence; and that the disease much more frequently begins in, and chiefly affects the pleura investing the lungs, producing all the symptoms supposed to belong to what has been called the *Pleuritis vera*.

- 342. Some physicians have imagined, that there is a case of pneumonic inflammation particularly entitled to the appellation of *Peripneumony*; and that is, the case of an inflammation beginning in the parenchyma or cellular texture of the lungs, and having its seat chiefly there. But it seems to me very doubtful, if any acute inflammation of the lungs, or any disease which has been called Peripneumony, be of that kind. It seems probable that every acute inflammation begins in membranous parts; and in every dissection of persons dead of peripneumony, the external membrane of the lungs, or some part of the pleura, has appeared to have been considerably affected.
- 343. An inflammation of the pleura covering the upper surface of the diaphragm, has been distinguished by the appellation of *Paraphrenitis*, as supposed to be attended with the peculiar symptoms of delirium, risus sardonicus, and other convulsive motions; but it is certain, that an inflammation of that portion of the pleura, and affecting also even the muscular substance of the diaphragm, has often taken place without any of these symptoms; and I have not met with either dissections, or any accounts of dissections, which support the opinion, that an inflammation of the pleura covering the diaphragm is attended with delirium more commonly than any other pneumonic inflammation.
- 344. With respect to the seat of pneumonic inflammation, I must observe further, that although it may arise and subsist chiefly in one part of the pleura only, it is however frequently communicated to other parts of the same, and commonly communicates a morbid affection through its whole extent.
- 345. The remote cause of pneumonic inflammation, is, commonly, cold applied to the body, obstructing perspiration, and determining to the lungs; while at the same time

These circumstances operate especially when an inflammatory diathesis prevails in the system; and consequently upon persons of the greatest vigour; in cold climates; in the winter season; and particularly in the spring, when vicissitudes of heat and cold are frequent. The disease, however, may arise in any season when such vicissitudes occur.

Other remote causes also may have a share in this matter; such as every means of obstructing, straining, or other-

wise injuring the pneumonic organs.

Pneumonic inflammation may happen to persons of any age, but rarely to those under the age of puberty; and most commonly it affects persons somewhat advanced in life, as those between forty-five and sixty years; those too especially of a robust and full habit.

The pneumonic inflammation has been sometimes so much an epidemic, as to occasion a suspicion of its depending upon a specific contagion; but I have not met with any evidence in proof of this. See Morgagni De Causis et Sedibus

Morborum, Epist. xxi. Art. 26.

346. The pneumonic, like other inflammations, may terminate by resolution, suppuration, or gangrene: but it has also a termination peculiar to itself, as has been hinted above (259.); and that is, when it is attended with an effusion of blood into the cellular texture of the lungs, which soon interrupting the circulation of the blood through this viscus, produces a fatal suffocation. This indeed seems to be the most common termination of pneumonic inflammation when it ends fatally; for, upon the dissection of almost every person dead of the disease, it has appeared that such an effusion had happened.

347. From these dissections also we learn, that pneumonic inflammation commonly produces an exudation from the internal surface of the pleura; which appears partly as a soft viscid crust, often of a compact, membranous form, covering

every where the surface of the pleura, and particularly those parts where the lungs adhere to the pleura costalis, or mediastinum; and this crust seems always to be the cement of such adhesions.

The same exudation shows itself also, by a quantity of a serous whitish fluid, commonly found in the cavity of the thorax; and some exudation or effusion is usually found to have been made likewise into the cavity of the pericardium.

348. It seems probable too, that a like effusion is sometimes made into the cavity of the bronchiæ; for in some persons who have died after labouring under a pneumonic inflammation for a few days only, the bronchiæ have been found filled with a considerable quantity of a serous and thickish fluid; which, I think, must be considered rather as the effusion mentioned, having had its thinner parts taken off by respiration, than as a pus so suddenly formed in the inflamed part.

349. It is however not improbable, that this effusion, as well as that made into the cavities of the thorax and pericardium, may be a matter of the same kind with that which, in other inflammations, is poured into the cellular texture of the parts inflamed, and there converted into pus; but, in the thorax and pericardium, it does not always assume that appearance, because the crust covering the surface prevents the absorption of the thinner part. This absorption, however, may be compensated in the bronchiæ by the drying power of the air; and therefore the effusion into them may put on a more purulent appearance.

In many cases of pneumonic inflammation, when the Sputa are very copious, it is difficult to suppose that the whole of them proceed from the mucous follicles of the bronchiæ. It seems more probable, that a great part of them may proceed from the effused serous fluid we have been mentioning; and this too will account for the sputa being so often of a purulent appearance. Perhaps the same thing may account

for that purulent expectoration, as well as that purulent matter found in the bronchiæ, which the learned Mr de Haen says he had often observed, when there was no ulceration of the lungs; and this explanation is at least more probable, than Mr de Haen's supposition of a pus formed in the circulating blood.

350. To conclude this subject, it would appear, that the effusion into the bronchiæ, which we have mentioned, often concurs with the effusion of red blood in occasioning the suffocation, which fatally terminates pneumonic inflammation; that the effusion of serum alone may have this effect; and, that the serum poured out in a certain quantity, rather than any debility in the powers of expectoration, is the cause of that ceasing of expectoration which very constantly precedes the fatal event; for, in many cases, the expectoration has ceased, when no other symptoms of debility have appeared, and when, upon dissection, the bronchiæ have been found full of liquid matter. Nay, it is even probable, that, in some cases, such an effusion may take place, without any symptoms of violent inflammation; and, in other cases, the effusion taking place may seem to remove the symptoms of inflammation which had appeared before, and thus account for those unexpected fatal terminations which have sometimes happened. Possibly this effusion may account also for many of the phenomena of the Peripneumonia Notha.

351. Pneumonic inflammation seldom terminates by resolution, without being attended with some evident evacuation. An hemorrhapy from the nose, happening upon some of the first days of the disease, has sometimes put an end to it; and it is said, that an evacuation from the hemorrhoidal veins, a bilious evacuation by stool, and an evacuation of urine, with a copious sediment, have severally had the same effect; but such occurrences have been rare and unusual.

The evacuation most frequently attending, and seeming to have the greatest effect in promoting resolution, is an expectoration of a thick, white, or yellowish matter, a little streaked with blood, copious, and brought up without either much or violent coughing.

Very frequently the resolution of this disease is attended with, and perhaps produced by a sweat, which is warm, fluid, copious over the whole body, and attended with an abatement of the frequency of the pulse, of the heat of the body, and of other febrile symptoms.

352. The prognostics in this disease are formed from observing the state of the principal symptoms.

A violent pyrexia is always dangerous.

The danger, however, is chiefly denoted by the difficulty of breathing. When the patient can lie on one side only; when he can lie on neither side, but upon his back only; when he cannot breathe with tolerable ease, except the trunk of his body be erect; when, even in this posture, the breathing is very difficult, and attended with a turgescence and flushing of the face, together with partial sweats about the head and neck, and an irregular pulse; these circumstances mark the difficulty of breathing in progressive degrees, and, consequently, in proportion, the danger of the disease.

A frequent violent cough aggravating the pain is always the symptom of an obstinate disease.

As I apprehend that the disease is hardly ever resolved, without some expectoration; so a dry cough must be always an unfavourable symptom.

As the expectoration formerly described marks that the disease is proceeding to a resolution; so an expectoration, which has not the conditions there mentioned, must denote at least a doubtful state of the disease; but the marks taken from the colour of the matter are for the most part fallacious.

An acute pain, very much interrupting inspiration, is always the mark of a violent disease; though not of one more dangerous, han an obtuse pain, attended with very difficult respiration.

When the pains, which at first had affected one side only, have afterwards spread into the other; or when, leaving the side first affected, they entirely pass into the other; these are always marks of an increasing, and, therefore, of a dangerous disease.

A delirium coming on during a pneumonic inflammation, is constantly a symptom denoting much danger.

353. When the termination of this disease proves fatal, it is on one or other of the days of the first week, from the third to the seventh. This is the most common case; but, in a few instances, death has happened at a later period of the disease.

When the disease is violent, but admitting of resolution, this also happens frequently in the course of the first week; but, in a more moderate state of the disease, the resolution is often delayed to the second week.

The disease, on some of the days from the third to the seventh, generally suffers a remission, which, however, may be often fallacious, as the disease does sometimes return again with as much violence as before, and then with great danger.

Sometimes the disease disappears on the second or third day, while an erysipelas makes its appearance on some external part, and, if this continue fixed, the pneumonic inflammation does not recur.

354. Pneumonia, like other inflammations, often ends in suppuration or gangrene.

355. When a pneumonia, with symptoms neither very violent nor very slight, has continued for many days, it is to be feared it will end in a suppuration. This, however, is not to be determined precisely by the number of days;

for, not only after the fourth, but even after the tenth day, there have been examples of a pneumonia ending by a resolution; and, if the disease has suffered some intermission, and again recurred, there may be instances of a resolution happening at a much later period from the beginning of the disease, than that just now mentioned.

- 356. But if a moderate disease, in spite of proper remedies employed, be protracted to the fourteenth day, without any considerable remission, a suppuration is pretty certainly to be expected: and it will be still more certain, if no signs of resolution have appeared, or if an expectoration which had appeared shall have again ceased, and the difficulty of breathing has continued or increased, while the other symptoms have rather abated.
- 357. That in a pneumonia, the effusion is made, which may lay the foundation of a suppuration, we conclude, from the difficulty of breathing becoming greater when the patient is in a horizontal posture, or when he can lie more easily upon the affected side.
- 358. That, in such cases, a suppuration has actually begun, may be concluded from the patient's being frequently affected with slight cold shiverings, and with a sense of cold, felt sometimes in one and sometimes in another part of the body. We form the same conclusion also from the state of the pulse, which is commonly less frequent and softer, but sometimes quicker and fuller, than before.
- 359. That a suppuration is already formed, may be inferred from there being a considerable remission of the pain, which had before subsisted, while, alongst with this, the cough, and especially the dyspnæa, continue, and are rather augmented. At the same time, the frequency of the pulse is rather increased, the feverish state suffers considerable exacerbations every evening, and, by degrees, a hectic, in all its circumstances, comes to be formed.

360. The termination of pneumonia, by gangrene, is much more rare than has been imagined; and, when it does occur, it is usually joined with the termination by effusion (346.), and the symptoms of the one are hardly to be distinguished from those of the other.

361. The cure of pneumonic inflammation must proceed upon the general plan (264.); but the importance of the part affected, and the danger to which it is exposed, require that

the remedies be fully, as well as early employed.

362. The remedy chiefly to be depended upon, is that of bleeding at the arm, which will be performed with most advantage in the arm of the side affected, but may be done in either arm, as may be most convenient for the patient or the surgeon. The quantity drawn must be suited to the violence of the disease, and to the vigour of the patient, and generally ought to be as large as this last circumstance will allow. The remission of pain, and the relief of respiration, during the flowing of the blood, may limit the quantity to be then drawn; but if these symptoms of relief do not appear, the bleeding should be continued till the symptoms of a beginning syncope come on. It is seldom that one bleeding, however large, will prove a cure of this disease; and, although the pain and difficulty of breathing may be much relieved by the first bleeding, these symptoms commonly, and after no long interval, recur, often with as much violence as before. In the event of such recurrence, the bleeding is to be repeated, even in the course of the same day, and perhaps to the same quantity as before.

Sometimes the second bleeding may be larger than the first. There are persons who, by their constitution, are ready to faint even upon a small bleeding; and, in such persons, this may prevent the drawing so much blood at first as a pneumonic inflammation might require; but, as the same persons are frequently found to bear after-bleedings better than the first, this allows the second and subsequent bleed-

ings to be larger, and to such a quantity as the symptoms of the disease may seem to demand.

363. It is according to the state of the symptoms that bleedings are to be repeated, and they will be more effectual when practised in the course of the first three days, than afterwards; but they are not to be omitted, although four days of the disease may have already elapsed. If the physician shall not have been called in sooner, or if the bleedings practised during the first days shall not have been large enough, or even although these bleedings shall have procured some remission; yet, upon the recurrence of the urgent symptoms, the bleedings should be repeated at any period of the disease, especially within the first fortnight, and even afterwards, if a tendency to suppuration be not evident, or if, after a seeming solution, the disease shall have again returned.

364. With respect to the quantity of blood which ought, or which with safety may be taken away, no general rules can be delivered, as it must be very different, according to the state of the disease, and the constitution of the patient. In an adult male, of tolerable strength, a pound of blood, avoirdupoise, is a full bleeding. Any quantity above twenty ounces is a large, and any quantity below twelve, a small bleeding. A quantity of from four to five pounds, in the course of two or three days, is generally as much as such patients will safely bear; but, if the intervals between the bleeding, and the whole of the time during which the bleedings have been employed, have been long, the quantity taken, upon the whole, may be greater.

365. When a large quantity of blood has been already taken from the arm, and when it is doubtful if more can with safety be drawn in that manner, some blood may still be taken by cupping and scarifying. Such a measure will be more particularly proper, when the continuance or recurrence of pain, rather than the difficulty of breathing, be-

comes the urgent symptom, and then the cupping and scarifying should be made as near to the pained part as can con-

veniently be done.

366. An expectoration takes place sometimes very early in this disease; but if, notwithstanding that, the urgent symptoms should still continue, the expectoration must not supersede the bleedings mentioned, and, during the first days of the disease, its solution is not to be trusted to the expectoration alone. It is in a more advanced stage only, when the proper remedies have been before employed, and when the symptoms have suffered a considerable remission, that the entire cure may be trusted to a copious and free expectoration.

367. During the first days of the disease, I have not found that bleeding stops expectoration. On the contrary, I have often observed bleeding promote it; and it is in a more advanced stage of the disease only, when the patient, by large evacuations, and the continuance of the disease, has been already exhausted, that bleeding seems to stop expectoration. It appears to me, that even then bleeding does not stop expectoration, so much by weakening the powers of expectoration, as by favouring the serous effusion

into the bronchiæ (348.), and thereby preventing it.

368. While the bleedings we have mentioned shall be employed, it will be necessary to employ also every part of the antiphlogistic regimen (130.—132.), and particularly to prevent the irritation which might arise from any increase of heat. For this purpose, it will be proper to keep the patient out of bed, while he can bear it easily, and, when he cannot, to cover him very lightly while he lies in bed. The temperature of his chamber ought not to exceed sixty degrees of Fahrenheit's thermometer, and whether it may be at any time colder, I am uncertain.

369. Mild and diluent drinks, moderately tepid, at least never cold, given by small portions at a time, ought to be

administered plentifully. These drinks may be impregnated with vegetable acids. They may be properly accompanied also with nitre, or some other neutrals; but these salts should be given separately from the drink.

It has been alleged, that both acids and nitre are ready to excite coughing, and in some persons they certainly have this effect; but, except in persons of a peculiar habit, I have not found their effects in exciting cough so considerable or troublesome as to prevent our seeking the advantages otherwise to be obtained from these medicines.

- 370. Some practitioners have doubted, if purgatives can be safely employed in this disease; and indeed a spontaneous diarrhœa occurring in the beginning of the disease, has seldom proved useful: but I have found the moderate use of cooling laxatives generally safe; and have always found it useful to keep the belly open by frequent emollient glysters.
- 371. To excite full vomiting by emetics, I judge to be a dangerous practice in this disease; but I have found it useful to exhibit nauseating doses; and, in a somewhat advanced state of the disease, I have found such doses prove the best means of promoting expectoration.
- 372. Fomentations and poultices applied to the pained part have been recommended, and may be useful; but the application of them is often inconvenient, and may be entirely omitted for the sake of the more effectual remedy, blistering.

Very early in the disease, a blister should be applied as near to the pained part as possible. But as, when the irritation of a blister is present, it renders bleeding less effectual, so the application of the blister should be delayed till a bleeding shall have been employed. If the disease be moderate, the blister may be applied immediately after the first bleeding; but if the disease be violent, and it is presumed that a second bleeding may be necessary soon after the first,

it will then be proper to delay the blister till after the second bleeding, when it may be supposed that any farther bleeding may be postponed till the irritation arising from the blister shall have ceased. It may be frequently necessary in this disease to repeat the blistering; and, in that case, the plasters should always be applied somewhere on the thorax; for, when applied to more distant parts, they have little effect. The keeping the blistered parts open, and making what is called a perpetual blister, has much less effect than a fresh blistering.

373. As this disease often terminates by an expectoration, so various means of promoting this have been proposed: but none of them appear to be very effectual; and some of them being acrid stimulant substances, cannot be very safe.

The gums usually employed seem too heating: squills seem to be less so; but they are not very powerful, and sometimes inconvenient, by the constant nausea they induce.

The volatile alkali may be of service as an expectorant; but it should be reserved for an advanced state of the disease.

Mucilaginous, and oily demulcents, appear to be useful, by allaying that acrimony of the mucus which occasions too frequent coughing; and which coughing prevents the stagnation and thickening of the mucus, and thereby its becoming mild.

The receiving into the lungs the steams of warm water impregnated with vinegar, has often proved useful in promoting expectoration.

But, of all other remedies, the most powerful for this purpose are antimonial medicines, given in nauseating doses, as in 179. Of these, however, I have not found the kermes mineral more efficacious than emetic tartar, or anti-

monial wine; and the dose of the kermes is much more uncertain than that of the others.

374. Though a spontaneous sweating often proves the crisis of this disease, it ought not to be excited by art, unless with much caution. At least, I have not yet found it either so effectual or safe, as some writers have alleged. When after some remission of the symptoms, spontaneous sweats of a proper kind arise, they may be encouraged; but it ought to be without much heat, and without stimulant medicines. If, however, the sweats be partial and clammy only, and a great difficulty of breathing still remain, it will be very dangerous to encourage them.

375. Physicians have differed much in opinion with regard to the use of opiates in pneumonic inflammation. To me it appears, that in the beginning of the disease, and before bleeding and blistering have produced some remission of the pain, and of the difficulty of breathing, opiates have a very bad effect, by their increasing the difficulty of breathing, and other inflammatory symptoms. But, in a more advanced state of the disease, when the difficulty of breathing has abated, and when the urgent symptom is a cough, proving the chief cause of the continuance of the pain and of the want of sleep, opiates may be employed with great advantage and safety. The interruption of the expectoration, which they seem to occasion, is for a short time only; and they seem often to promote it, as they occasion a stagnation of what was by frequent coughing dissipated insensibly, and therefore give the appearance of what physicians have called Concocted Matter.

CHAP. VII.

OF THE PERIPNEUMONIA NOTHA, OR BASTARD PERIPNEUMONY.

376. A disease under this name is mentioned in some medical writings of the sixteenth century; but it is very doubtful if the name was then applied to the same disease to which we now apply it. It appears to me, that unless some of the cases described under the title of Catarrhus Suffocativus be supposed to have been of the kind I am now to treat of, there was no description of this disease given before that of Sydenham, under the title I have employed here.

377. After Sydenham, Boerhaave was the first, who in a system took notice of it as a distinct disease; and he has described it in his aphorisms, although with some circumstances different from those in the description of Sydenham. Of late, Mr Lieutaud has with great confidence asserted, that Sydenham and Boerhaave had, under the same title, described different diseases; and that, perhaps, neither of them had on this subject delivered any thing but hypothesis.

378. Notwithstanding this bold assertion, I am humbly of opinion, and the Baron Van Swieten seems to have been of the same, that Sydenham and Boerhaave did describe, under the same title, one and the same disease. Nay, I am further of opinion, that the disease described by Mr Lieutaud himself is not essentially different from that described by both the other authors. Nor will the doubts of the very learned, but modest Morgagni, on this subject, disturb us,

if we consider, that while very few describers of diseases either have it in their power, or have been sufficiently attentive in distinguishing between the essential and accidental symptoms of disease; so, in a disease which may have not only different, but a greater number of symptoms in one person than it has in another, we need not wonder that the descriptions of the same disease by different persons should come out in some respects different. I shall, however, enter no further into this controversy; but endeavour to describe the disease as it has appeared to myself, and, as I judge, in the essential symptoms, much the same as it has appeared to all the other authors mentioned.

379. This disease appears at the same seasons that other pneumonic and catarrhal affections commonly do; that is, in autumn and in spring. Like these diseases also, it is seemingly occasioned by sudden changes of the weather from heat to cold. It appears also during the prevalence of contagious catarrhs; and it is frequently under the form of the Peripneumonia Notha, that these catarrhs prove fatal to elderly persons.

This disease attacks most commonly persons somewhat advanced in life, especially those of a full phlegmatic habit; those who have before been frequently liable to catarrhal affections, and those who have been much addicted to the large use of fermented and spirituous liquors.

The disease commonly comes on with the same symptoms as other febrile diseases; that is, with alternate chills and heats: and the symptoms of pyrexia are sometimes sufficiently evident; but in most cases these are very moderate, and in some hardly at all appear. With the first attack of the disease, a cough comes on, usually accompanied with some expectoration: and in many cases there is a frequent throwing up of a considerable quantity of a viscid opaque mucus. The cough often becomes frequent and violent; is sometimes accompanied with a rending headach; and, as in other cases

of cough, a vomiting is sometimes excited by it. The face is sometimes flushed, and some giddiness or drowsiness often attends the disease. A difficulty of breathing, with a sense of oppression, or straitening in the chest, with some obscure pains there, and a sense of lassitude over the whole body, very constantly attend this disease. The blood drawn in this disease shows a buffy surface, as in other inflammatory affections.

The disease has often the appearance only of a more violent catarrh, and after the employment of some remedies is entirely relieved by a free and copious expectoration. In other cases, however, the feverish and catarrhal symptoms are at first very moderate, and even slight; but, after a few days, these symptoms suddenly become considerable, and put an end to the patient's life, when the indications of dan-

ger were before very little evident.

380. From the different circumstances in which this disease appears, the pathology of it is difficult. It is certainly often no other at first than a catarrhal affection, which, in elderly persons, is frequently attended with a large afflux of mucus to the lungs; and it was on this footing that Sydenham considered it as only differing in degree from his Febris. Hyemalis. A catarrh, however, is strictly an affection of the mucous membrane and follicles of the bronchiæ alone: but: it may readily have, and frequently has a degree of pneumonic inflammation joined to it; and in that case may prove more properly the peculiar disease we treat of here. But, further, as pneumonic inflammation very often produces an effusion of serum into the bronchiæ (348.), so this, in elderly persons, may occur in consequence of a slight degree of inflammation; and when it does happen, will give the exquisite and fatal cases of the peripneumonia notha.

381. After this attempt to establish the pathology, the method of cure in the different circumstances of the disease

will not be difficult.

In case the fever, catarrhal and pneumonic symptoms, are immediately considerable, a blood-letting will certainly be proper and necessary; but, where these symptoms are moderate, a blood-letting will hardly be requisite; and, when an effusion is to be feared, the repetition of blood-letting may prove extremely hurtful.

In all cases, the remedies chiefly to be depended upon are vomiting and blistering. Full vomiting may be frequently repeated, and nauseating doses ought to be constantly employed.

Purging may perhaps be useful; but as it is seldom so in pneumonic affections, nothing but gentle laxatives are here necessary.

In all the circumstances of this disease, the antiphlogistic regimen is proper: cold is to be guarded against, but much external heat is to be as carefully avoided.

382. If a person sweats easily, and it can be brought out by the use of mild tepid liquors only, the practice may in such persons be tried. See Morgagni De Sed. et Caus. Epist. xiii. Art. 4.

383. I might here, perhaps, give a separate section on the Carditis and Pericarditis, or the inflammations of the Heart and Pericardium; but they hardly require a particular consideration. An acute inflammation of the pericardium is almost always a part of the same pneumonic affection I have been treating of, and is not always distinguished by any different symptoms; or if it be, does not require any different treatment. The same may be said of an acute inflammation of the heart itself; and when it happens that the one or other is discovered by the symptoms of palpitation or syncope, no more will be implied than that the remedies of pneumonic inflammation should be employed with greater diligence.

From dissections, which show the heart and pericardium affected with erosions, ulcerations, and abscesses, we discover

that these parts had been before affected with inflammation; and that in cases where no symptoms of pneumonic inflammation had appeared: it may therefore be alleged, that those inflammations of the heart and pericardium should be considered as diseases independent of the pneumonic. This indeed is just: but the history of such cases proves, that those inflammations had been of a chronic kind, and hardly discovering themselves by any peculiar symptoms; or, if attended with symptoms marking an affection of the heart, these were however such as have been known frequently to arise from other causes than inflammation. There is therefore, upon the whole, no room for our treating more particularly of the inflammation of the heart or pericardium.

CHAP. VIII.

OF THE GASTRITIS, OR INFLAMMATION OF THE STOMACH.

G. XIV. GASTRITIS.—Pyrexia typhodes; anxietas; in epigastrio ardor et dolor, ingestis quibuslibet auctus; vomendi cupiditas, et ingesta protinus rejecta; singultus.

Sp. 1. Gastritis (phlegmonodea) dolore acuto, pyrexid vehementi.

Sp. 2. Gastritis (erythematica) dolore et pyrexiâ lenioribus, rubore erysipelatoso in faucibus apparente.

384. Among the inflammations of the abdominal region, I have given a place in our nosology to the Peritonitis; comprehending under that title, not only the inflammations

affecting the peritonæum lining the cavity of the abdomen, but also those affecting the extensions of this membrane in the omentum and mesentery. It is not however proposed to treat of them here, because it is very difficult to say by what symptoms they are always to be known; and farther, because when known, they do not require any remedies beside those of inflammation in general. I proceed, therefore, to treat of those inflammations, which, affecting viscera of peculiar functions, both give occasion to peculiar symptoms, and require some peculiarities in the method of cure: and I shall begin with the inflammation of the stomach.

385. The inflammation of the stomach is of two kinds, Phlegmonic, or Erythematic *. The first may be seated in what is called the Nervous Coat of the stomach, or in the peritonæum investing it. The second is always seated in the villous coat and cellular texture immediately subjacent.

386. The phlegmonic inflammation of the stomach, or what has been commonly treated of under the title of Gastritis, is known by an acute pain in some part of the region of the stomach, attended with pyrexia, with frequent vomiting, especially upon occasion of any thing being taken down into the stomach, and frequently with hiccup. The pulse is commonly small and hard; and there is a greater loss of strength in all the functions of the body, than in the case of almost any other inflammation.

387. This inflammation may be produced by various causes; as, by external contusion; by acrids of various kinds taken into the stomach; frequently by very cold drink taken into it, while the body is very warm; and sometimes by over-distention, from the having taken in a large quantity of food of difficult digestion. All these may be considered as external causes; but the disease sometimes arises also

[•] This is a new term; but whoever considers what is said in 274, will, I expect, perceive the propriety, and even the necessity of it.

from internal causes not so well understood. It may arise from inflammations of the neighbouring parts communicated to the stomach, and is then to be considered as a symptomatic affection only. It may arise also from various acrimonies generated within the body, either in the stomach itself, or in other parts, and poured into the cavity of the stomach. These are causes more directly applied to the stomach; but there are perhaps others originating elsewhere, and affecting the stomach only sympathetically. Such may be supposed to have acted in the case of putrid fevers and exanthematic pyrexiæ; in which, upon dissection, it has been discovered that the stomach had been affected with inflammation.

388. From the sensibility of the stomach, and its communication with the rest of the system, it will be obvious, that the inflammation of this organ, by whatever causes produced, may be attended with fatal consequences. In particular, by the great debility which such an inflammation suddenly produces, it may quickly prove fatal, without running the common course of inflammations.

When it lasts long enough to follow the ordinary course of other inflammations, it may terminate by resolution, gangrene, or suppuration. The scirrhosities which are often discovered affecting the stomach, are seldom known to be the consequences of inflammation.

389. The tendency of this disease to admit of resolution, may be known by its having arisen from no violent cause; by the moderate state of the symptoms; and by a gradual remission of these, especially in consequence of remedies employed in the course of the first, or at farthest the second week of the disease.

390. The tendency to suppuration may be known by the symptoms continuing in a moderate degree, for more than one or two weeks; and likewise by a considerable remission

of the pain, while a sense of weight and an anxiety still remain.

When an abscess has been formed, the frequency of the pulse is at first abated; but soon after it is again increased, with frequent cold shiverings, and with marked exacerbations in the afternoon and evening, followed by night-sweatings, and other symptoms of hectic fever. These at length prove fatal, unless the abscess open into the cavity of the stomach, the pus be evacuated by vomiting, and the ulcer soon heal.

- 391. The tendency to gangrene may be suspected from the violence of the symptoms not yielding to the remedies employed during the first days of the disease; and that a gangrene has already begun, may be known from the sudden remission of the pain, while the frequency of the pulse continues, and at the same time becomes weaker, accompanied with other marks of an increasing debility in the whole system.
- 392. From the dissection of dead bodies it appears, that the stomach very often has been affected with inflammation, when the characteristic symptoms of it (386.) had not appeared; and therefore it is very difficult to lay down any general rules for the cure of this disease.
- 393. It is only in the case of phlegmonic inflammation, as characterised in 386., that we can advise the cure or resolution to be attempted by large and repeated bleedings employed early in the disease: and we are not to be deterred from these by the smallness of the pulse; for, after bleeding, it commonly becomes fuller and softer. After bleeding, a blister ought to be applied to the region of the stomach; and the cure will be assisted by fomentations of the whole abdomen, as well as by frequent emollient and laxative glysters.

394. In this disease, the irritability of the stomach will not admit of any medicines being thrown into it; and, if any

internal medicines can be supposed necessary, they must be exhibited in glysters. The giving of drink may be tried; but it ought to be of the very mildest kind, and in very small quantities at a time.

395. Opiates, in whatever manner exhibited, are very hurtful during the first days of the disease; but when its violence shall have abated, and when the violence of the pain and vomiting recur at intervals only, opiates given in glysters may be cautiously tried, and sometimes have been employed with advantage.

396. A tendency to suppuration, in this disease, is to be obviated by the means just now proposed. After a certain duration of the disease, it cannot be prevented by any means whatever; and when actually begun, must be left to nature; the business of the physician being only to avoid all irritation.

397. A tendency to gangrene can be obviated in no other way than by the means suggested in 393, employed early in the disease; and when it does actually supervene admits of no remedy.

398. Erythematic inflammations of the stomach are more frequent than those of the phlegmonic kind. It appears, at least from dissections, that the stomach has often been affected with inflammation, when neither pain nor pyrexia had before given any notice of it; and such inflammation I apprehend to have been chiefly of the erythematic kind. This species of inflammation also, is especially to be expected from acrimony of any kind thrown into the stomach; and would certainly occur more frequently from such a cause, were not the interior surface of this organ commonly defended by mucus exuding in large quantity from the numerous follicles placed immediately under the villous coat. Upon many occasions, however, the exudation of mucus is prevented, or the liquid poured out is of a less viscid kind, so as to be less fitted to defend the subjacent nerves; and

it is in such cases that matters, even of moderate acrimony, may produce an erythematic affection of the stomach.

399. From what has been said, it must appear, that an erythematic inflammation of the stomach may frequently occur; but will not always discover itself, as it sometimes

takes place without pyrexia, pain, or vomiting.

400. There are cases, however, in which it may be discovered. The affection of the stomach sometimes spreads into the œsophagus, and appears in the pharynx, as well as on the whole internal surface of the mouth. When, therefore, an erythematic inflammation affects the mouth and fauces, and when at the same time there shall be in the stomach an unusual sensibility to all acrids, with a frequent vomiting, there can be little doubt of the stomach being affected with the same inflammation that has appeared in the fauces. Even when no inflammation appears in the fauces, yet if some degree of pain be felt in the stomach, if there be a want of appetite, an anxiety, frequent vomiting, an unusual sensibility with respect to acrids, some thirst, and frequency of pulse, there will then be room to suspect an erythematic inflammation of the stomach; and we have known such symptoms, after some time, discover their cause more clearly by the appearance of the inflammation in the fauces or mouth.

Erythematic inflammation is often disposed to spread from one place to another on the same surface; and, in doing so, to leave the place it had first occupied. Thus, such an inflammation has been known to spread successively along the whole course of the alimentary canal, occasioning in the intestines diarrhæa, and in the stomach vomitings; the diarrhæa ceasing when the vomitings came on, or the vomitings upon the coming on of the diarrhæa.

401. When an erythematic inflammation of the stomach shall be discovered, it is to be treated differently, according to the difference of its causes and symptoms.

When it is owing to acrid matters taken in by the mouth. and when these may be supposed still present in the stomach, they are to be washed out by throwing in a large quantity of warm and mild liquids, and by exciting vomiting. At the same time, if the nature of the acrimony and its proper corrector be known, this should be thrown in; or if a specific corrector be not known, some general demulcents should be employed.

402. These measures, however, are more suited to prevent the inflammation, than to cure it after it has taken place. When this last may be supposed to be the case, if it be attended with a sense of heat, with pain and pyrexia, according to the degree of these symptoms, the measures

proposed in 393. are to be more or less employed.

403. When an erythematic inflammation of the stomach has arisen from internal causes, if pain and pyrexia accompany the disease, some bleeding in persons not otherwise weakened may be employed: but, as the affection often arises in putrid diseases, and in convalescents from fever, so in these cases bleeding is inadmissible; all that can be done being to avoid irritation, and to throw into the stomach what quantity of acids, and of acescent aliments, it shall be found to bear.

In some conditions of the body, in which this disease arises, the Peruvian bark and bitters may seem to be indicated; but an erythematic state of the stomach does not commonly allow of them.

CHAP. IX.

OF THE ENTERITIS, OR INFLAMMATION OF THE INTESTINES.

- G. XV. Enteritis.—Pyrexia typhodes; dolor abdominis pungens, tendens, circa umbilicum torquens; vomitus; alvus pertinaciter adstricta.
- Sp. 1. Enteritis (phlegmonodæa) dolore acuto, pyrexiâ vehementi, vomitu, et alvo astrictâ.
- Sp. 2. Enteritis (erythematica) dolore et pyrexiâ lenioribus, sine vomitu, et cum diarrhæâ.
- 404. The inflammation of the intestines, like that of the stomach, may be either phlegmonic, or erythematic: but, on the subject of the latter, I have nothing to add to what has been said in the last chapter; and shall here therefore treat of the phlegmonic inflammation only.
- 406. This inflammation may be known to be present, by a fixed pain of the abdomen, attended with pyrexia, costiveness, and vomiting. Practical writers mention the pain in this case as felt in different parts of the abdomen, according to the different seat of the inflammation; and so indeed it sometimes happens; but very often the pain spreads over the whole belly, and is felt more especially about the navel.
- 407. The Enteritis and Gastritis arise from like causes; but the former, more readily than the latter, proceeds from cold applied to the lower extremities, or to the belly itself. The enteritis has likewise its own peculiar causes, as supervening upon the spasmodic colic, incarcerated hernia, and volvulus.

408. Inflammations of the intestines have the same terminations as those of the stomach; and, in both cases, the several tendencies are to be discovered by the same symptoms

(309.-391.).

409. The cure of the enteritis is in general the same with that of the gastritis (393. et seq.); but in the enteritis, there is commonly more access to the introduction of liquids, of acid, acescent, and other cooling remedies, and even of laxatives. As, however, a vomiting so frequently attends this disease, care must be taken not to excite that vomiting by either the quantity or the quality of any thing thrown into the stomach.

The same observation with respect to the use of opiates is to be made here as in the case of gastritis.

410. Under the title of Enteritis, it has been usual with practical writers to treat of the remedies proper for the colic, and its higher degree named Ileus; but, although it be true that the enteritis and colic do frequently accompany each other, I still hold them to be distinct diseases, to be often occurring separately, and accordingly to require and admit of different remedies. I shall therefore delay speaking of the remedies proper for the colic, till I shall come to treat of this disease in its proper place.

411. What might be mentioned with respect to the suppuration or gangrene occurring in the enteritis, may be sufficiently understood from what has been said on the same

subject with respect to the gastritis.

CHAP. X.

OF THE HEPATITIS, OR INFLAMMATION OF THE LIVER.

- G. XVI. HEPATITIS.—Pyrexia; hypochondrii dextri tensio et dolor, sæpe pungens, pleuritici instar, sæpius obtusus; dolor ad claviculam et summum humeri dextri; decubitus in sinistrum latus difficilis; dyspnæa; tussis sicca; vomitus; singultus.
 - Sp. 1. Acuta, signis in charactere dictis dignoscenda.
- Sp. 2. Chronica. Hæc sæpe nulla, quibus dignoscatur, signa præbet; aliquando tamen eandem adesse suspicari potest, ex hepatitidis causis quibusdam prægressis, ex sensu quodam plenitudinis et gravitatis in hypochondrio dextro, ex doloribus plus minusve pungentibus in eâdem parte subinde perceptis, ex dolore quodam a presso hypochondrio dextro, vel a decubitu in latus sinistrum sentito, et denique ex pyrexiâ leviori cum dictis signis subinde infestante.
- 412. THE inflammation of the liver seems to be of two kinds; the one acute, and the other chronic.
- 413. The acute is attended with pungent pain, considerable pyrexia, a frequent, strong, and hard pulse, and high-coloured urine.
- 414. The chronic hepatitis very often does not exhibit any of these symptoms; and it is only discovered to have happened, by our finding in the liver, upon dissection, large abscesses which are presumed to be the effect of some degree of previous inflammation. As this chronic inflammation is seldom to be certainly known, and, therefore, does not lead to any determined practice, we omit treating of it here, and shall only treat of what relates to the acute species of the hepatitis.

415. The acute hepatitis may be known by a pain, more or less acute, in the right hypochondrium, increased by pressing upon the part. The pain is very often in such a part of the side, as to make it appear like that of a pleurisy, and frequently, like that too, is increased on respiration. The disease is, in some instances, also attended with a cough, which is commonly dry, but sometimes humid; and, when the pain thus resembles that of a pleurisy, the patient cannot lie easily except upon the side affected.

In every kind of acute hepatitis, the pain is often extended to the clavicle, and to the top of the shoulder. The disease is attended sometimes with hiccup, and sometimes with vomiting. Many practical writers have mentioned the jaundice, or a yellow colour of the skin and eyes, as a very constant symptom of the hepatitis; but experience has shown,

that it may often occur without any such symptom.

416. The remote causes of hepatitis are not always to be discerned, and many have been assigned on a very uncertain foundation. The following seem to be frequently evident:

1. External violence from contusions or falls, and especially those which have occasioned a fracture of the cranium.

2. Certain passions of the mind.

3. Violent summer heats.

4. Violent exercise.

5. Intermittent and remittent fevers.

6. Cold, applied externally or internally; and, therefore, in many cases, the same causes which produce pneumonic inflammation, produce hepatitis, and whence also the two diseases are sometimes joined together.

7. Various solid concretions or collections of liquid matter, in the substance of the liver, produced by unknown causes. Lastly, the acute is often induced by a chronic inflammation of this viscus.

417. It has been supposed, that the hepatitis may be an affection either of the extremities of the hepatic artery, or of those of the vena portarum; but of the last supposition there is neither evidence nor probability.

418. It seems probable, that the acute hepatitis is always

an affection of the external membrane of the liver, and that the parenchymatic is of the chronic kind. The acute disease may be seated either on the convex or on the concave surface of the liver. In the former case, a more pungent pain and hiccup may be produced, and the respiration is more considerably affected. In the latter, there occurs less pain, and a vomiting is produced, commonly by some inflammation communicated to the stomach. The inflammation of the concave surface of the liver may be readily communicated to the gall bladder and biliary ducts: and this, perhaps, is the only case of idiopathic hepatitis attended with jaundice.

- 419. The hepatitis, like other inflammations, may end by resolution, suppuration, or gangrene; and the tendency to the one or the other of these events may be known from what has been delivered above.
- 420. The resolution of hepatitis is often the consequence of, or is attended with evacuations of different kinds. A hæmorrhagy, sometimes from the right nostril, and sometimes from the hæmorrhoidal vessels, gives a solution of the disease. Sometimes a bilious diarrhœa contributes to the same event; and the resolution of the hepatitis, as of other inflammations, is attended with sweating, and with an evacuation of urine, depositing a copious sediment. Can this disease be resolved by expectoration? It would seem to be sometimes cured by an erysipelas appearing in some external part.
- 421. When this disease has ended in suppuration, the pus collected may be discharged by the biliary ducts; or, if the suppurated part does not any where adhere closely to the neighbouring parts, the pus may be discharged into the cavity of the abdomen; but if, during the first state of inflammation, the affected part of the liver shall have formed a close adhesion to some of the neighbouring parts, the discharge of the pus, after suppuration, may be various, according to the different seat of the abscess. When seated

on the convex part of the liver, if the adhesion be to the peritonæum lining the common teguments, the pus may make its way through these, and be discharged outwardly; or, if the adhesion should have been to the diaphragm, the pus may penetrate through this, and into the cavity of the thorax, or of the lungs, and through the latter may be discharged by coughing. When the abscess of the liver is seated on its concave part, then, in consequence of adhesions, the pus may be discharged into the stomach or the intestines, and into these last either directly, or by the intervention of the biliary ducts.

422. The prognostics in this disease are established upon the general principles relating to inflammation, upon the particular circumstances of the liver, and upon the parti-

cular state of its inflammation.

The cure of this disease must proceed upon the general plan; by bleeding, more or less, according to the urgency of pain and pyrexia; by the application of blisters; by fomentations of the external parts in the usual manner, and of the internal parts by frequent emollient glysters; by frequently opening the belly, by means of gentle laxatives, and by diluent and refrigerant remedies.

423. Although, in many cases, the chronic hepatitis does not clearly discover itself, yet, upon many occasions, it may perhaps be discovered, or at least suspected, from those causes which might affect the liver (416.) having been applied; from some fulness and some sense of weight in the right hypochondrium; from some shooting pains at times felt in that region; from some uneasiness or pain felt upon pressure in that part; from some uneasiness from lying upon the left side; and, lastly, from some degree of pyrexia, combined with more or fewer of these symptoms.

When, from some of these circumstances, a chronic inflammation is to be suspected, it is to be treated by the same remedies as in the last paragraph, employed more or less, as the degree of the several symptoms shall more distinctly indicate.

- 424. When, from either kind of inflammation, a suppuration of the liver has been formed, and the abscess points outwardly, the part must be opened, the pus evacuated, and the ulcer healed, according to the ordinary rules for cleansing and healing such abscesses and ulcers.
- 425. I might here consider the Splenitis, or inflammation of the spleen; but it does not seem necessary, because the disease very seldom occurs. When it does, it may be readily known by the character given in our Nosology; and its various termination, as well as the practice which it requires, may be understood from what has been already said with respect to the inflammations of the other abdominal viscera.

CHAP. XI.

OF THE NEPHRITIS, OR THE INFLAMMATION OF THE KIDNEYS.

- G. XVIII. NEPHRITIS.—Pyrexia; dolor in regione renis, sæpe ureteris iter sequens; mictio frequens urinæ, vel tenuis decoloris, vel ruberrimæ; vomitus; cruris stupor; testiculi ejusdem lateris retractio aut dolor.
- 426. This disease, like other internal inflammations, is always attended with pyrexia, and is especially known from the region of the kidney being affected by pain, commonly obtuse, sometimes pungent. This pain is not increased by the motion of the trunk of the body, so much as a pain of

the rheumatic kind affecting the same region. The pain of the nephritis may be often distinguished, by its shooting along the course of the ureter, and is frequently attended with a drawing up of the testicle, and with a numbness of the limb, on the side affected; although, indeed, these symptoms most commonly accompany the inflammation arising from a calculus in the kidney or in the ureter. The nephritis is almost constantly attended with frequent vomiting, and often with costiveness and colic pains. Usually the state of the urine is changed; it is most commonly of a deep red colour, is voided frequently, and in small quantity at a time. In more violent cases, the urine is sometimes colourless.

427. The remote causes of this disease may be various; as, external contusion; violent or long-continued riding; strains of the muscles of the back incumbent on the kidneys; various acrids in the course of the circulation, conveyed to the kidneys; and, perhaps, some other internal causes not yet well known. The most frequent is that of calculous matter obstructing the tubuli uriniferi, or calculi formed in the pelvis of the kidneys, and either sticking there, or falling into the ureter.

428. The various event of this disease may be understood from what has been delivered on the subject of other inflammations.

429. Writers, in treating of the cure of nephritis, have commonly, at the same time, treated of the cure of the Calculus renalis; but, though this may often produce nephritis, it is to be considered as a distinct and separate disease; and what I have to offer as to the mode of treating it, must be reserved to its proper place. Here I shall treat only of the cure of the Nephritis Vera, or Idiopathica.

430. The cure of this proceeds upon the general plan, by bleeding, external fomentation, frequent emollient glysters, antiphlogistic purgatives, and the free use of mild and de-

mulcent liquids. The application of blisters is hardly admissible, or, at least, will require great care, to avoid any considerable absorption of the cantharides.

- 431. The Cystitis, or inflammation of the bladder, is seldom a primary disease, and, therefore, is not to be treated of here. The treatment of it, so far as necessary to be explained, may be readily understood from what has been already delivered.
- 432. Of the visceral inflammations, there remains to be considered the inflammation of the Uterus; but I omit it here, because the consideration of it cannot be separated from that of the diseases of childbearing women.

CHAP. XII.

OF THE RHEUMATISM.

G. XXI. Rheumatismus.—Morbus ab externâ, et plerumque evidente causâ; pyrexia; dolor circa articulos, musculorum tractum sequens, genua et reliquos majores, potius quam pedum vel manuum articulos, infestans, calore externo auctus.

ARTHRODYNIA.—Post rheumatismum, nisum violentum, vel subluxationem; dolores artuum vel musculorum, sub motu præsertim aucti, plus minusve fugaces, calore lecti vel alio externo levati; artus debiles, rigidi, facile, et sæpe sponte frigescentes; pyrexia nulla; tumor plerumque nullus.

- 433. Or this disease there are two species, the one named the Acute, the other the Chronic rheumatism.
- 434. It is the Acute Rheumatism which especially belongs to this place, as, from its causes, symptoms, and methods of

cure, it will appear to be a species of phlegmasia, or inflammation.

435. This disease is frequent in cold, and more uncommon in warm climates. It appears most frequently in autumn and spring, less frequently in winter, when the cold is considerable and constant, and very seldom during the heat of summer. It may occur, however, at any season, if vicissitudes of heat and cold be for the time frequent.

436. The acute rheumatism generally arises from the application of cold to the body, when any way unusually warm; or, when one part of the body is exposed to cold, whilst the other parts are kept warm; or, lastly, when the application of cold is long continued, as it is when wet or moist clothes are applied to any part of the body.

437. These causes may affect persons of all ages; but the rheumatism seldom appears in either very young, or in elderly persons, and most commonly occurs from the age of puberty to that of thirty-five years.

438. These causes (436.) may also affect persons of any constitution; but they most commonly affect those of a sanguine temperament.

439. This disease is particularly distinguished by pains affecting the joints, for the most part the joints alone, but sometimes affecting also the muscular parts. Very often the pains shoot along the course of the muscles, from one joint to another, and are always much increased by the action of the muscles belonging to the joint or joints affected.

440. The larger joints are most frequently affected; such as the hip-joint, the knees of the lower, and the shoulders and elbows of the upper extremities. The ankles and wrists are also frequently affected; but the smaller joints, such as those of the toes or fingers, seldom suffer.

441. This disease, although sometimes confined to one part of the body only, yet very often affects many parts of it; and then it comes on with a cold stage, which is imme-

diately succeeded by the other symptoms of pyrexia, and, particularly, by a frequent, full, and hard pulse. Sometimes the pyrexia is formed before any pains are perceived; but more commonly pains are felt in particular parts, before any symptoms of pyrexia appear.

- 442. When no pyrexia is present, the pain is sometimes confined to one joint only; but when any considerable pyrexia is present, although the pain may be chiefly in one joint, yet it seldom happens but that the pains affect several joints often at the very same time, but for the most part shifting their place, and having abated in one joint, become more violent in another. They do not commonly remain long in the same joint, but frequently shift from one to another, and sometimes return to joints formerly affected; and in this manner the disease often continues for a long time.
- 443. The pyrexia attending this disease has an exacerbation every evening, and is most considerable during the night, when the pains also become more violent; and it is at the same time that the pains shift their place from one joint to another. The pains seem to be also increased during the night, by the body being covered more closely, and kept warmer.
- 444. A joint, after having been for some time affected with pain, commonly becomes affected also with some redness and swelling, which is painful to the touch. It seldom happens that a swelling coming on does not alleviate the pain of the joint; but the swelling does not always take off the pain entirely, nor secure the joint against a return of it.
- 445. This disease is commonly attended with some sweating, which occurs early in the course of the disease; but it is seldom free or copious, and seldom either relieves the pains or proves critical.
- 446. In the course of this disease the urine is high coloured, and in the beginning without sediment; but as the disease advances, and the pyrexia has more considerable remisease

sions, the urine deposites a lateritious sediment. This however does not prove entirely critical; for the disease often continues long after such a sediment has appeared in the urine.

447. When blood is drawn in this disease, it always exhibits the appearance mentioned in 237.

448. The acute rheumatism, though it has so much of the nature of the other phlegmasiæ, differs from all those hitherto mentioned, in this, that it is not apt to terminate in suppuration. This almost never happens in rheumatism; but the disease sometimes produces effusions of a transparent gelatinous fluid into the sheaths of the tendons. If we may be allowed to suppose that such effusions are frequent, it must also happen that the effused fluid is commonly reabsorbed; for it has seldom happened, and never indeed to my observation, that considerable or permanent tumours have been produced, or such as required to be opened, and to have the contained fluid evacuated. Such tumours, however, have occurred to others, and the opening made in them has produced ulcers difficult to heal. Vide Storck, Ann. Med. II.

449. With the circumstances mentioned from 439. to 448, the disease often continues for several weeks. It seldom however proves fatal; and it rarely happens that the pyrexia continues to be considerable for more than two or three weeks. While the pyrexia abates in its violence, if the pains of the joints continue, they are less violent, more limited in their place, being confined commonly to one or a few joints only, and are less ready to change their place.

450. When the pyrexia attending rheumatism has entirely ceased; when the swelling, and particularly the redness of the joints are entirely gone; but when pains still continue to affect certain joints, which remain stiff, which feel uneasy upon motion, or upon changes of weather, the disease is named the Chronic Rheumatism, as it very often continues

for a long time. As the chronic is commonly the sequel of the acute rheumatism, I think it proper to treat of the former also in this place.

451. The limits between the acute and chronic rheumatism are not always exactly marked.

When the pains are still ready to shift their place; when they are especially severe in the night-time; when at the same time they are attended with some degree of pyrexia, and with some swelling, and especially with some redness of the joints; the disease is to be considered as still partaking the nature of the acute rheumatism.

But when there is no degree of pyrexia remaining; when the pained joints are without redness; when they are cold and stiff; when they cannot easily be made to sweat; or when, while a free and warm sweat is brought out on the rest of the body, it is only clammy and cold on the pained joints; and when, especially, the pains of these joints are increased by cold, and relieved by heat applied to them, the case is to be considered as that of a purely chronic rheumatism.

- 452. The chronic rheumatism may affect different joints; but is especially ready to affect those joints which are surrounded with many muscles, and those of which the muscles are employed in the most constant and vigorous exertions. Such is the case of the vertebræ of the loins, the affection of which is named Lumbago; or that of the hip-joint, when the disease is named Ischias, or Sciatica.
- 453. Violent strains and spasms occurring on sudden, and somewhat violent exertions, bring on rheumatic affections, which at first partake of the acute, but very soon change into the nature of the chronic rheumatism.
- 454. I have thus delivered the history of rheumatism; and suppose that, from what has been said, the remote causes, the diagnosis, and prognosis of the disease, may be understood. The distinction of the rheumatic pains from

those resembling them, which occur in the syphilis and scurvy, will be obvious, either from the seat of those pains, or from the concomitant symptoms peculiar to these diseases. The distinction of rheumatism from gout will be more fully understood from what is to be delivered in the following chapter.

455. With respect to the proximate cause of rheumatism, there have been various opinions. It has been imputed to a peculiar acrimony; of which, however, in ordinary cases, I can find no evidence; and, from the consideration of the remote causes, the symptoms, and cure of the disease, I

think the supposition very improbable.

The cause of an Ischias nervosa, assigned by Cotunnius, appears to me hypothetical, and is not supported by either the phenomena or method of cure. That, however, a disease of a rheumatic nature may be occasioned by an acrid matter applied to the nerves, is evident from the toothach, a rheumatic affection generally arising from a carious tooth.

That pains resembling those of rheumatism may arise from deep-seated suppurations, we know from some cases depending on such a cause, and which, in their symptoms, resemble the lumbago or ischias. I believe, however, that by a proper attention, those cases depending on suppuration may be commonly distinguished from the genuine cases of lumbago and ischias; and, from what is said in 448, I judge it to be at least improbable, that a genuine lumbago or ischias does ever end in suppuration.

456. The proximate cause of rheumatism has been by many supposed to be a lentor of the fluids obstructing the vessels of the part; but the same consideration as in 241.1, 2, 3, 4, and 5, will apply equally here for rejecting the sup-

position of a lentor.

457. While I cannot, therefore, find either evidence or reason for supposing that the rheumatism depends upon any change in the state of the fluids, I must conclude that the

proximate cause of acute rheumatism is commonly the same with that of other inflammations not depending upon a direct stimulus.

458. In the case of rheumatism, I suppose that the most common remote cause of it, that is, cold applied, operates especially on the vessels of the joints, from these being less covered by a cellular texture than those of the intermediate parts of the limbs. I suppose further, that the application of cold produces a constriction of the extreme vessels on the surface, and at the same time an increase of tone or phlogistic diathesis in the course of them, from which arises an increased impetus of the blood, and at the same time a resistance to the free passage of it, and consequently inflammation and pain. Further, I suppose, that the resistance formed excites the vis medicatrix to a further increase of the impetus of the blood; and, to support this, a cold stage arises, a spasm is formed, and a pyrexia and phlogistic diathesis are produced in the whole system.

459. According to this explanation, the cause of acute rheumatism appears to be exactly analogous to that of the inflammations depending on an increased afflux of blood to a part while it is exposed to the action of cold.

But there seems to be also, in the case of rheumatism, a peculiar affection of the fibres of the muscles. These fibres seem to be under some degree of rigidity, and therefore less easily admit of motion; and are pained upon the exertions of it.

It it also an affection of these fibres which gives an opportunity to the propagation of pains from one joint to another, along the course of the muscles; and which pains are more severely felt in the extremities of the muscles terminating in the joints, because, beyond these, the oscillations are not propagated.

This affection of the muscular fibres attending rheumatism, seems to explain why strains and spasms produce rheu-

matic affections; and, upon the whole, shows, that with an inflammatory affection of the sanguiferous system, there is also in rheumatism a peculiar affection of the muscular fibres, which has a considerable share in producing the phenomena of the disease.

460. Having thus given my opinion of the proximate cause of rheumatism, I proceed to treat of the cure.

461. Whatever difficulty may occur with respect to the explanation given (458. and 459.), this remains certain, that in acute rheumatism, at least in all those cases which do not arise from direct stimuli, there is an inflammatory affection of the parts, and a phlogistic diathesis in the whole system; and upon these is founded the method of cure, which frequent experience has approved of.

462. The cure therefore requires, in the first place, an antiphlogistic regimen, and particularly a total abstinence from animal food, and from all fermented or spirituous liquors; substituting a vegetable or milk diet, and the plentiful use of bland diluent drinks.

463. Upon the same principle (450.), at least with perhaps the same exception as above, blood-letting is the chief remedy of acute rheumatism. The blood ought to be drawn in large quantity, and the bleeding is to be repeated in proportion to the frequency, fulness, and hardness of the pulse, and to the violence of the pain. For the most part, large and repeated bleedings, during the first days of the disease, seem to be necessary, and accordingly have been very much employed: but to this some bounds are to be set; for very profuse bleedings occasion a slow recovery, and, if not absolutely effectual, are ready to produce a chronic rheumatism.

464. To avoid that debility of the system, which general bleedings are ready to occasion, the urgent symptom of pain may be often relieved by topical bleedings, and especially when any swelling and redness have come upon a joint, the pain of it may be very certainly relieved by such bleedings;

but as the continuance of the disease seems to depend more upon the phlogistic diathesis of the whole system, than upon the affection of particular parts, so topical bleedings will not always supply the place of the general bleedings proposed above.

465. To take off the phlogistic diathesis prevailing in this disease, purging may be useful, if procured by medicines which do not stimulate the whole system, such as the neutral salts, and which have, in some measure, a refrigerant power. Purging, however, is not so powerful as bleeding in removing phlogistic diathesis; and when the disease has become general and violent, frequent stools are inconvenient, and even hurtful, by the motion and pain which they occasion.

466. In acute rheumatism, applications to the pained parts are of little service. Fomentations, in the beginning of the disease, rather aggravate than relieve the pains. The rube-facients and camphor are more effectual in relieving the pains; but generally they only shift the pain from one part into another, and do little towards the cure of the general affection. Blistering, applied to the pained part, may also be very effectual in removing the pain from it; but will be of little use, except where the pains are much confined to one part.

467. The several remedies mentioned from 451. to 455. moderate the violence of the disease, and sometimes remove it entirely: but they sometimes fail in this, and leave the cure imperfect. The attemping a cure by large and repeated bleedings, is attended with many inconveniences (see 140.); and the most effectual and safe method of curing this disease, is after some general bleedings for taking off, or at least diminishing the phlogistic diathesis, to employ sweating, conducted by the rules laid down 168. and 169.

468. Opiates, except where they are directed to procure sweat, always prove hurtful in every stage of this disease.

469. The Peruvian bark has been supposed a remedy in

some cases of this disease; but we have seldom found it useful, and in some cases hurtful. It appears to me to be fit in those cases only, in which the phlogistic diathesis is already much abated, and where at the same time the exacerbations of the disease are manifestly periodical, with considerable remissions interposed.

470. Calomel, and some other preparations of mercury, have been recommended in the acute rheumatism; but, I believe, they are useful only in cases of the chronic kind, or at least in cases approaching to the nature of these.

471. Having now treated fully of the cure of the acute rheumatism, I proceed to treat of the cure of the chronic, which is so frequently a sequel of the former.

472. The phenomena of the purely chronic rheumatism, mentioned in 439. and 440. lead me to conclude, that its proximate cause is an atony, both of the blood-vessels and of the muscular fibres of the part affected, together with a degree of rigidity, and contraction in the latter, such as frequently attend them in a state of atony.

473. Upon this view of the proximate cause, the general indication of cure must be to restore the activity and vigour of the vital principle in the part; and the remedies for this disease, which experience has approved of, are chiefly such as are manifestly suited to the indication proposed.

474. These remedies are either external or internal.

The external are, the supporting the heat of the part, by keeping it constantly covered with flannel; the increasing the heat of the part by external heat, applied either in a dry or in a humid form; the diligent use of the flesh brush, or other means of friction; the application of electricity in sparks or shocks: the application of cold water by affusion or immersion; the application of essential oils of the most warm and penetrating kind; the application of salt brine; and, lastly, the employment of exercise, either of the part itself, so far as it can easily bear it; or of the whole body, by riding or other mode of gestation.

475. The internal remedies are, 1. Large doses of essential oil drawn from resinous substances, such as turpentine; 2. Substances containing such oils, as guaiac; 3. Volatile alkaline salts; 4. These, or other medicines, directed to procure sweat (169.); And, lastly, calomel or other preparation of mercury, in small doses, continued for some time.

476. These (463. 464.) are the remedies successfully employed in the purely chronic rheumatism; and there are still others recommended, as bleeding, general and topical, burning, blistering, and issues; but these appear to me to be chiefly, perhaps only useful, when the disease still partakes of the nature of acute rheumatism.

CHAP. XIII.

OF THE TOOTHACH, OR ODONTALGIA.

G. XXII. Odontalgia.—Rheumatismus vel arthrodynia maxillarum a carie dentium.

477. I have formerly considered this disease as a species of Rheumatism, to be treated upon the same principles as those delivered in the preceding chapter; but now, from more attentive consideration, I am led to consider the toothach as a distinct disease. Whilst the most of what has been delivered in this chapter proceeds upon the supposition that the rheumatism depends upon a certain state of the bloodvessels and of the motion of the blood in them, without this being produced by the irritation of any acrid matter applied: I judge, that in the toothach, though there are often the same circumstances in the state of the blood-vessels as in

the cases of rheumatism, these circumstances in toothach always arise from the application of an acrid matter to the nerves of the teeth.

- 478. This disease is often no other than a pain felt in a particular tooth, without any inflammatory affection being at the same time communicated to the neighbouring parts. This, however, is rarely the case; and for the most part, together with the pain of the tooth, there is some degree of pain and of inflammatory affection communicated to the neighbouring parts, sometimes to the whole of those on the same side of the head with the affected tooth.
- 479. This inflammatory affection seems to me to be always an affection of muscles, and of the membranous parts connected with these, without any tendency to suppuration; and such an affection, as is excited by cold in similar parts elsewhere. It is from these circumstances that I conclude the affection to be of the rheumatic kind.
- 480. It is possible that the muscles and membranes of the jaw may be affected by the same causes which produce the rheumatism in other parts; and it is also possible, that a rheumatic diathesis at first produced by irritation, may subsist in the muscles and membranes of the jaw, so that the inflammatory affection may be renewed by certain causes without any new application of acrid matter: but I am persuaded that either of these occurrences are very rare, and I have never been able to ascertain any cases of toothach to be of these kinds. I consider it therefore as highly probable, that this rheumatic affection of the jaws, which we name toothach, is always dependent upon some immediate application of acrid matter to the nerves of the teeth.
 - 481. It is however to be observed, that this application of acrid matter does not always excite a pain in the tooth itself, or an inflammatory affection of the neighbouring parts, but that it very often operates by producing a diathesis only; so that cold applied to the neighbouring parts does ex-

cite both a pain in the tooth, and an inflammatory affection of the neighbouring parts which did not appear before.

There seem to be also certain states of the body, which operate upon the same diathesis, so as to produce toothach. Such seems to be the case with pregnant women, who are more liable to the toothach than any other women. There are probably also some cases of increased irritability which render persons more subject to toothach. Thus women are more liable to the disease than men, and particularly women liable to hysteric affections.

482. The acrid matter producing this disease seems to be generated first in the hard substances of the teeth; and as it often appears first upon the external surface of these, it might be suspected to arise from the application of external matters to the teeth; but as the production of this acrimony is often begun in the internal cavity of the teeth, where the operation of external matters cannot be suspected, and as even when it begins upon the external parts of the teeth, the operation of the cause is at first in a small portion of the teeth only, it is difficult to suppose that any matter externally applied could act in such a partial manner; so it is presumed, that the acrid matter occasioning the toothach is produced by some vice originating in the substance of the tooth itself. When it begins upon the external surface, it is on the enamel; but upon the internal surface, it must be in the bony part. From what causes it arises in either of these substances, I do not at all know; but I suspect that it often arises from some more general fault in the fluids of the body. The frequent use of mercury, especially when thrown much upon the mouth, and the state of the fluids in scurvy, seem both of them to give a disposition to a caries in the teeth; and it is possible that some other acrimonious states of the fluids may have the same effect.

483. A caries in some part of the teeth, whether arising upon their internal surface, or upon their external, proceed-

ing so far as to reach the nerves in the cavity of the teeth, is pretty manifestly the cause of toothach, and of the first attacks of it; but when the cavity of the teeth has been opened, so that the external air or other matters can reach that cavity, these are often the exciting causes of toothach, and serve to prove in general, that acrid matters applied to the nerves occasion the disease.

484. What is the nature of the matter produced in the caries of the teeth, I do not understand, nor have I found any proper corrector of it; but I presume it to be of the putrid kind, as it often taints the breath with a fetid odour.

485. In the cure of this disease, a long experience has shown, that the extraction of the carious tooth proves the most effectual, and very often the only effectual remedy of the disease. But as in some cases this extraction is not proper, and as in many cases it is obstinately avoided, other means of curing the disease, or at least of relieving the pain, have been sought for and much practised.

486. Among these remedies, those are likely to be the most effectual which entirely destroy the affected nerve, or at least so much of it as is exposed to the action of the acrid matter in the tooth. When an opening is made into the cavity of the tooth, the nerve of it may be destroyed most certainly by the actual cautery; and it may also possibly be done by the application of potential caustics, either of the alkaline or acid kind.

487. When these remedies cannot be rendered effectual, relief may often be obtained by diminishing the sensibility of the nerve affected, by the application of opium, or of the more acrid aromatic oils, directly to the nerve in the tooth. It appears also that the sensibility of the affected nerve may often be for some time diminished by the external application of opium to the extremities of those nerves in the skin, which are branches of the same fifth pair of nerves with those of the teeth.

488. When the disease consists entirely in a pain of the nerve of the tooth, without any considerable affection communicated to the neighbouring parts, the remedies already mentioned are those especially to be employed; but when the disease consists very much in an inflammatory affection of the muscles and membranes of the jaw, and when at the same time there is little or no access for the above-mentioned remedies to the affected nerve, other measures are to be employed for relieving the disease.

489. If the disease be attended with any general phlogistic diathesis of the system, or with any considerable degree of pyrexia, a general bleeding may be useful in relieving the disease; but these circumstances occur very rarely, and the disease is for the most part a purely topical affection, in which, as I observed before, a general bleeding is of very little service. As this disease, however, is a topical inflammation, it might be supposed that topical bleedings would be very useful, and sometimes they are so; but it is seldom that their effects are either considerable or permanent. The reasons of this I take to be, that the disease does not consist in an affection of the blood-vessels alone, as in the ordinary cases of rheumatism; but in a peculiar affection of the fibres both of the muscles and of the vessels of the part, induced by irritation. The inefficacy of topical bleedings is with me a proof of the disease being of the latter kind.

490. The remedies, therefore, necessary to give relief in this disease, are those which take off the spasm of the vessels, and especially of the muscles and membranes affected. Such are blistering, brought as near to the part affected as can conveniently be done; and such are also increased excretions excited in the neighbouring parts, as of the saliva and mucus of the mouth, by the use of acrid masticatories. It is often sufficient to excite a strong sensation in the neighbouring parts, as, by eau de luce, spirit of lavender, or Hungary water snuffed up the nostrils; or by the vitriolic

æther, properly applied to the cheek. It is upon the same footing that I suppose brandy, or other ardent spirit, held in the mouth, is often of service.

491. There are cases of toothach in which it does not appear that the disease arises from an acrid matter immediately applied to the nerve of a tooth, but from the external application of cold, or some other causes immediately applied to the muscles and membranes of the jaw; and which, therefore, seem to require some remedies different from those above mentioned. But, in all such cases, it is to be suspected, that the effects of cold, or of other such causes, are owing to a diathesis, produced by an acrid matter applied to the nerve of a tooth, and continuing in some measure to act there; and we have accordingly often found, that the action of those external causes was to be obviated only by the extraction of the tooth from which the diathesis had arisen.

CHAP. XIV.

OF THE GOUT.

G. XXIII. Podagra.—Morbus hæreditarius, oriens sine causâ externâ evidente, sed præeunte plerumque ventriculi affectione insolitâ; pyrexia; dolor ad articulum, et plerumque pedis pollici, certe pedum et manuum juncturis, potissimum infestus; per intervalla revertens, et sæpe cum ventriculi, vel aliarum internarum partium affectionibus alternans.

Varietas 1. Podagra (regularis) cum inflammatione artuum satis vehementi, per aliquot dies perstante, et paulatim cum tumore, pruritu, et desquamatione partis, recedente.

- Var. 2. Podagra (atonica) cum ventriculi vel alius partis internæ atoniâ, et vel sine expectatâ aut solitâ artuum inflammatione, vel cum doloribus artuum lenibus tantum et fugacibus, et cum dyspepsiâ vel aliis atoniæ symptomatis, subito sæpe alternantibus.
- Var. 3. Podagra (retrograda) cum inflammatione artuum subito recedente, et ventriculi vel alius partis internæ atoniá mox insecutâ.
- Var. 4. Podagra (aberrans) cum partis internæ inflammatione, vel non prægresså, vel prægresså, et subito recedente, inflammatione artuum.
- 492. The Gout, not only as it occurs in different persons, but even as it occurs in the same person at different times, is a disease of such various appearance, that it is difficult to render the history of it complete and exact, or to give a character of it that will universally apply. However, I shall endeavour to describe the disease as it most commonly appears, and to mark the varieties of it as well as I can. From such a history I expect that a general character may be given; and such I think is the one given in the last edition of our Nosology.
- 493. The gout is generally a hereditary disease; but some persons, without hereditary disposition, seem to acquire it; and, in some, a hereditary disposition may be counteracted by various causes. These circumstances may seem to give exceptions to our general position; but the facts directly supporting it are very numerous.
- 494. This disease attacks especially the male sex; but it sometimes, though more rarely, attacks also the female. The females liable to it are those of the more robust and full habits; and it very often happens to such long before the menstrual evacuation has ceased. I have found it occurring in several females, whose menstrual evacuations were more abundant than usual.
 - 495. This disease seldom attacks cunuchs, and, when it

does, they seem to be those who happen to be of a robust habit, to lead an indolent life, and to live very full.

496. The gout attacks especially men of robust and large bodies, men of large heads, of full and corpulent habits, and men whose skins are covered with a thicker rete mucosum,

which gives a coarser surface.

497. If, with the ancients, we might ascertain, by certain terms, the temperaments of men, I would say, that the gout attacks especially men of a cholerico-sanguine temperament, and that it very seldom attacks the purely sanguine or melancholic. It is, however, very difficult to treat this matter with due precision.

498. The gout seldom attacks persons employed in constant bodily labour, or persons who live much upon vegetable aliment. It is also said to be less frequent among those people who make no use of wine or other fermented liquors.

499. The gout does not commonly attack men till after the age of five-and-thirty, and generally not till a still later period. There are, indeed, instances of the gout occurring more early; but these are few in comparison of the numbers which agree with what we have given as the general rule. When the disease does appear early in life, it seems to be in those in whom the hereditary disposition is very strong, and to whom the remote causes, to be hereafter mentioned, have been applied in a considerable degree.

500. As the gout is a hereditary disease, and affects especially men of a particular habit, its remote causes may be

considered as predisponent and occasional.

501. The predisponent cause, so far as expressed by external appearances, or by the general temperament, we have already marked; and physicians have been very confident in assigning the occasional causes; but, in a disease depending so much upon a predisposition, the assigning occasional causes must be uncertain, as, in the predisposed, the occasional causes may not always appear, and, in persons not predisposed, they may appear without effect. This uncertainty must particularly affect the case of the gout; but I shall offer what appears to me most probable on the subject.

502. The occasional causes of the gout seem to be of two kinds: First, Those which induce a plethoric state of the body: Secondly, Those which, in plethoric habits, induce a state of debility.

503. Of the first kind are a sedentary and indolent manner of life, a full diet of animal food, and the large use of wine, or of other fermented liquors. These circumstances commonly precede the disease; and, if there should be any doubt of their power of producing it, the fact, however, will be rendered sufficiently probable, by what has been observed in 498.

504. Of the second kind of occasional causes which induce debility, are, excess in venery; intemperance in the use of intoxicating liquors; indigestion, produced either by the quantity or quality of aliments; much application to study or business; night-watching; excessive evacuations; the ceasing of usual labour; the sudden change from a very full to a very spare diet; the large use of acids and ascescents; and, lastly, cold applied to the lower extremities.

505. The first (503.) seem to act by increasing the predisposition. The last (504.) are commonly the exciting causes, both of the first attacks, and of the repetitions of the disease.

506. It is an inflammatory affection of some of the joints which especially constitutes what we call a paroxysm of the gout. This sometimes comes on suddenly without any warning, but is generally preceded by several symptoms; such as, the ceasing of a sweating which the feet had been commonly affected with before; an unusual coldness of the feet and legs; a frequent numbness, alternating with a sense of prickling along the whole of the lower extremities; frequent cramps of the muscles of the legs; and an unusual turgescence of the veins.

507. While these symptoms take place in the lower extremities, the whole body is affected with some degree of torpor and languor, and the functions of the stomach in particular are more or less disturbed; the appetite is diminished, and flatulency, or other symptoms of indigestion, are felt. These symptoms, and those of 506, take place for several days, sometimes for a week or two, before a paroxysm comes on; but commonly, upon the day immediately preceding it, the appetite becomes greater than usual

508. The circumstances of paroxysms are the following: They come on most commonly in the spring, and sooner or later, according as the vernal heat succeeds sooner or later to the winter's cold; and, perhaps, sooner or later also, according as the body may happen to be more or less exposed

to the vicissitudes of heat and cold.

509. The attacks are sometimes felt first in the evening, but more commonly about two or three o'clock of the morning. The paroxysm begins with a pain affecting one foot, most commonly in the ball or first joint of the great toe, but sometimes in other parts of the foot. With the coming on of this pain, there is commonly more or less of a cold shivering, which, as the pain increases, gradually ceases, and is succeeded by a hot stage of pyrexia, which continues for the same time with the pain itself. From the first attack, the pain becomes by degrees more violent, and continues in this state, with great restlessness of the whole body, till next midnight, after which it gradually remits; and, after it has continued for twenty-four hours from the commencement of the first attack, it commonly ceases very entirely, and, with the coming on of a gentle sweat, allows the patient to fall asleep. The patient, upon coming out of this sleep in the morning, finds the pained part affected with some redness and swelling, which, after having continued some days, gradually abate.

510. When a paroxysm has thus come on, although the

violent pain, after twenty-four hours, be considerably abated, the patient is not entirely relieved from it. For some days, he has every evening a return of a more considerable pain and pyrexia, and which continue with more or less violence till morning. After continuing in this manner for several days, the disease sometimes goes entirely off, not to return till after a long interval.

- 511. When the disease, after having thus remained for some time in a joint, ceases very entirely, it generally leaves the person in very perfect health, enjoying greater ease and alacrity in the functions of both body and mind, than he had for a long time before experienced.
- 512. At the beginning of the disease, the returns of it are sometimes only once in three or four years; but, after some time, the intervals become shorter, and the attacks become annual; afterwards, they come twice each year, and at length recur several times during the whole course of autumn, winter, and spring; and, as it happens, that, when the fits are frequent, the paroxysms become also longer, so, in the advanced state of the disease, the patient is hardly ever tolerably free from it, except perhaps for two or three months in summer.
- 513. The progress of the disease is also marked by the parts which it affects. At first, it commonly affects one foot only; afterwards, every paroxysm affects both feet, the one after the other; and, as the disease continues to recur, it not only affects both feet at once, but, after having ceased in the foot which was secondly attacked, returns again into the foot first affected, and perhaps a second time also into the other. Its changes of place are not only from one foot to the other, but also from the feet into other joints, especially those of the upper and lower extremities; so that there is hardly a joint of the body that is not, on one occasion or other, affected. It sometimes affects two different joints at the same time, but more commonly it is severe in a single

joint only, and passes successively from one joint to another; so that the patient's affliction is often protracted for a long time.

514. When the disease has often returned, and the paroxysms have become very frequent, the pains are commonly less violent than they were at first; but the patient is more affected with sickness, and the other symptoms of the atonic

gout, which shall be hereafter mentioned.

515. After the first paroxysms of the disease, the joints which have been affected are entirely restored to their former suppleness and strength; but after the disease has recurred very often, the joints affected do neither so suddenly nor so entirely recover their former state, but continue weak and stiff; and these effects at length proceed to such a degree,

that the joints lose their motion altogether.

516. In many persons, but not in all, after the disease has frequently recurred, concretions of a chalky nature are formed upon the outside of the joints, and for the most part immediately under the skin. The matter seems to be deposited at first in a fluid form, but afterwards becomes dry and firm. In their dry state, these concretions are a friable earthy substance, very entirely soluble in acids. After they have been formed, they contribute, with other circumstances, to destroy the motion of the joint.

517. In most persons who have laboured under the gout for many years, a nephritic affection comes on, and discovers itself by all the symptoms which usually attend calculous concretions in the kidneys, and which we shall have occasion to describe in another place. All that is necessary to be observed here is, that the nephritic affection alternates with paroxysms of the gout, and that the two affections, the nephritic and the gouty, are hardly ever present at the same time. This also may be observed, that children of gouty and nephritic parents commonly inherit one or other of these diseases; but whichever may have been the principal

disease of the parent, some of the children have the one, and some the other. In some of them, the nephritic affection occurs alone, without any gout supervening; and this happens to be frequently the case of the female offspring of gouty parents.

described the most common form of the disease, and which, therefore, however diversified in the manner I have said, may be still called the regular state of the gout. Upon occasion, however, the disease assumes different appearances; but, as I suppose the disease to depend always upon a certain diathesis or disposition of the system, so every appearance which we can perceive to depend upon that same disposition, I still consider as a symptom and case of the gout. The principal circumstance in what we term the Regular Gout, is the inflammatory affection of the joints; and, whatever symptoms we can perceive to be connected with, or to depend upon the disposition which produces that inflammatory affection, but without its taking place, or being present at the same time, we name the Irregular Gout.

519. Of such irregular gout there are three different states, which I name the atonic, the retrocedent, and the misplaced gout.

520. The atonic state is when the gouty diathesis prevails in the system, but, from certain causes, does not produce the inflammatory affection of the joints. In this case, the morbid symptoms which appear are chiefly affections of the stomach; such as loss of appetite, indigestion, and its various circumstances of sickness, nausea, vomiting, flatulency, acid eructations, and pains in the region of the stomach. These symptoms are frequently accompanied with pains and cramps in several parts of the trunk, and the upper extremities of the body, which are relieved by the discharge of wind from the stomach. Together with these affections of the stomach, there commonly occurs a costiveness: but

sometimes a looseness with colic pains. These affections of the alimentary canal are often attended with all the symptoms of hypochondriasis; as, dejection of mind, a constant and anxious attention to the slightest feelings, an imaginary aggravation of these, and an apprehension of danger from them.

In the same atonic gout, the viscera of the thorax also are sometimes affected, and palpitations, faintings, and asthma, occur.

In the head also occur headachs, giddiness, apoplectic,

and paralytic affections.

521. When the several symptoms now mentioned occur in habits having the marks of a gouty disposition, this may be suspected to have laid the foundation of them; and especially when either, in such habits, a manifest tendency to the inflammatory affection has formerly appeared; or when the symptoms mentioned are intermixed with, and are relieved by, some degree of the inflammatory gout. In such cases, there can be no doubt of considering the whole as a

state of the gout.

522. Another state of the disease I name the retrocedent gout. This occurs when an inflammatory state of the joints has, in the usual manner, come on, but which, without arising to the ordinary degree of pain and inflammation, or, at least, without these continuing for the usual time, and receding gradually in the usual manner, they suddenly and entirely cease, while some internal part becomes affected. The internal part most commonly affected is the stomach, which is then affected with anxiety, sickness, vomiting, or violent pain; but sometimes the internal part is the heart, which gives occasion to a syncope; sometimes it is the lungs, which are affected with asthma; and sometimes it is the head, giving occasion to apoplexy or palsy. In all these cases, there can be no doubt of the symptoms being all a part of the same disease, however different the affection may seem to be in the parts which it attacks.

523. The third state of irregular gout, which we name the *misplaced*, is when the gouty diathesis, instead of producing the inflammatory affection of the joints, produces an inflammatory affection of some internal part, and which appears from the same symptoms that attend the inflammation of those parts arising from other causes.

Whether the gouty diathesis does ever produce such inflammation of the internal parts, without having first produced it in the joints, or if the inflammation of the internal parts be always a translation from the joints previously affected, I dare not determine; but even supposing the latter to be always the case, I think the difference of the affection of the internal part must still distinguish the misplaced from what I have named the Retrocedent Gout.

524. What internal parts may be affected by the misplaced gout, I cannot precisely say, because I have never met with any cases of the misplaced gout in my practice; and I find no cases of it distinctly marked by practical writers, except that of pneumonic inflammation.

525. There are two cases of a translated gout; the one of which is an affection of the neck of the bladder, producing pain, strangury, and a catarrhus vesicæ: the other is an affection of the rectum, sometimes by pain alone in that part, and sometimes by hæmorrhoidal swellings there. In gouty persons, I have known such affections alternate with inflammatory affections of the joints: but whether to refer these affections to the retrocedent, or to the misplaced gout, I will not presume to determine.

526. From the history which I have now delivered of the gout, I think it may be discerned under all its various appearances. It is however commonly supposed, that there are cases in which it may be difficult to distinguish gout from rheumatism, and it is possible there may be such cases; but, for the most part, the two diseases may be distinguished with great certainty, by observing the predisposition, the

antecedents, the parts affected, the recurrences of the disease, and its connection with the other parts of the system; which circumstances, for the most part, appear very differently in the two diseases.

527. With respect to the gout, our next business is to investigate its proximate cause; which must be a difficult task,

and I attempt it with some diffidence.

528. Upon this subject, the opinion which has generally prevailed is, that the gout depends upon a certain morbific matter, always present in the body; and that this matter, by certain causes, thrown upon the joints or other parts, produces the several phenomena of the disease.

529. This doctrine, however ancient and general, appears

to me very doubtful; for,

First, There is no direct evidence of any morbific matter being present in persons disposed to the gout. There are no experiments or observations which show that the blood, or other humours of gouty persons, are in any respect different from those of other persons. Previous to attacks of the gout, there appear no marks of any morbid state of the fluids; for the disease generally attacks those persons who have enjoyed the most perfect health, and appear to be in that state when the disease comes on. At a certain period of the disease, a peculiar matter indeed appears in gouty persons (516.); but this, which does not appear in every instance, and which appears only after the disease has subsisted for a long time, seems manifestly to be the effect, not the cause of the disease. Further, though there be certain acrids which, taken into the body, seem to excite the gout (504.), it is probable that these acrids operate otherwise in exciting the disease, than by affording the material cause of it. In general, therefore, there is no proof of any morbific matter being the cause of the gout.

Secondly, The suppositions concerning the particular nature of the matter producing the gout, have been so various

and so contradictory to each other, as to allow us to conclude, that there is truly no proof of the existence of any of them. With respect to many of these suppositions, they are so inconsistent with chemical philosophy, and with the laws of the animal economy, that they must be entirely rejected.

Thirdly, The supposition of a morbific matter being the cause of the gout, is not consistent with the phenomena of the disease, particularly with its frequent and sudden translations from one part to another.

Fourthly, The supposition is further rendered improbable by this, that if a morbific matter did exist, its operation should be similar in the several parts which it attacks; whereas it seems to be very different, being stimulant, and exciting inflammation in the joints, but sedative, and destroying the tone in the stomach: Which, upon the supposition of particular matter acting in both cases, is not to be explained by any difference in the part affected.

Fifthly, Some facts, alleged in proof of a morbific matter, are not sufficiently confirmed, such as those which would prove the disease to be contagious. There is, however, no proper evidence of this, the facts given being not only few, but exceptionable; and the negative observations are innumerable.

Sixthly, Some arguments brought in favour of a morbific matter, are founded upon a mistaken explanation. The disease has been supposed to depend upon a morbific matter, because it is hereditary. But the inference is not just; for most hereditary diseases do not depend upon any morbific matter, but upon a particular conformation of the structure of the body, transmitted from the parent to the offspring; and this last appears to be particularly the case in the gout. It may be also observed, that hereditary diseases, depending upon a morbific matter, always appear much more early in life than the gout commonly does.

Seventhly, The supposition of a morbific matter being the cause of the gout, has been hitherto useless, as it has not suggested any successful method of cure. Particular suppositions have often corrupted the practice, and have frequently led from those views which might be useful, and from that practice which experience had approved. Further, though the supposition of a morbific matter has been generally received, it has been as generally neglected in practice. When the gout has affected the stomach, nobody thinks of correcting the matter supposed to be present there, but merely of restoring the tone of the moving fibres.

Eighthly, The supposition of a morbific matter is quite superfluous; for it explains nothing, without supposing that matter to produce a change in the state of the moving powers; and a change in the state of the moving powers, produced by other causes, explains every circumstance, without the supposition of a morbific matter; and to this purpose, it may be observed, that many of the causes (504.) exciting the gout, do not operate upon the state of the fluids, but directly and solely upon that of the moving powers.

Lastly, The supposition of a morbific matter is also superfluous; because, without any such supposition, I think the disease can be explained in a manner more consistent with its phenomena, with the laws of the animal economy, and with the method of cure which experience has appro-

I now proceed to give this explanation; but, before entering upon it, I must premise some general observations.

530. The first observation is, that the gout is a disease of the whole system, or depends upon a certain general conformation and state of the body; which manifestly appears from the facts mentioned from 494. to 497. But the general state of the system depends chiefly upon the state of its primary moving powers; and therefore the gout may be supposed to be chiefly an affection of these. 2

531. My second observation is, that the gout is manifestly an affection of the nervous system; in which the primary moving powers of the whole system are lodged. The occasional or exciting causes (504.), are almost all such as act directly upon the nerves and nervous system; and the greater part of the symptoms of the atonic or retrocedent gout are manifestly affections of the same system, (520. and 522.). This leads us to seek for an explanation of the whole of the disease in the laws of the nervous system, and particularly in the changes which may happen in the balance of its several parts.

532. My third observation is, that the stomach, which has so universal a consent with the rest of the system, is the internal part that is the most frequently and often very considerably affected by the gout. The paroxysms of the disease are commonly preceded by an affection of the stomach (507.); many of the exciting causes (504.) act first upon the stomach; and the symptoms of the atonic and retrocedent gout (520, 522.) are most commonly and chiefly affections of the same organ. This observation leads us to remark, that there is a balance subsisting between the state of the internal and that of the external parts; and, in particular, that the state of the stomach is connected with that of the external parts (44.), so that the state of tone in the one may be communicated to the other.

533. These observations being premised, I shall now offer the following pathology of the gout.

In some persons there is a certain vigorous and plethoric state of the system (496.), which, at a certain period of life, is liable to a loss of tone in the extremities (499. 506.). This is in some measure communicated to the whole system, but appears more especially in the functions of the stomach (507.). When this loss of tone occurs while the energy of the brain still retains its vigour, the vis medicatrix naturæ is excited to restore the tone of the parts; and accomplishes it by exciting an inflammatory affection in some part of the extremities. When this has subsisted for some days, the tone of the extremities, and of the whole system, is restored, and the patient returns to his ordinary state of health (511.).

534. This is the course of things, in the ordinary form of the disease, which we name the regular gout; but there are circumstances of the body, in which this course is interrupted or varied. Thus, when the atony (506. 507.) has taken place, if the reaction (509.) do not exceed, the atony continues in the stomach, or perhaps in other internal parts, and produces that state which we have, for reasons now obvious, named the atonic gout.

is, when, to the atony, the reaction and inflammation have to a certain degree succeeded, but from causes either internal or external, the tone of the extremities, and perhaps of the whole system, is weakened; so that the inflammatory state, before it had either proceeded to the degree, or continued for the time requisite for restoring the tone of the system, suddenly and entirely ceases. Hence the stomach, and other internal parts, relapse into the state of atony; and perhaps have this increased by the atony communicated from the extremities: All which appears in what we have termed the retrocedent gout.

536. A third case of variation from the ordinary course of the gout is, when to the atony usually preceding, an inflammatory reaction fully succeeds; but has its usual determination to the joints by some circumstances prevented, and is therefore directed to an internal part, where it produces an inflammatory affection, and that state of things which we have named the misplaced gout.

537. We have thus offered an explanation of the circumstances of the system in the several states of the gout; and this explanation we suppose to be consistent with the pheno-

mena of the disease, and with the laws of the animal economy. There are indeed, with respect to the theory of the disease, several questions which might be put, to which we have not given any answer. But, though perhaps we could give an answer to many of these questions, it does not here appear necessary; as at present we intend only to establish such general facts with regard to this disease, as may lay a foundation for the cure of it, so far as experience has enabled us to prosecute it. Proceeding, therefore, upon the several parts of the pathology given, as so many matters of fact, I shall now consider what may be attempted towards the cure of the disease.

538. In entering upon this, I must observe, in the first place, that a cure has been commonly thought impossible; and we acknowledge it to be very probable, that the gout, as a disease of the whole habit, and very often depending upon original conformation, cannot be cured by medicines, the effects of which are always very transitory, and seldom extend to the producing any considerable change of the whole habit.

539. It would perhaps have been happy for gouty persons, if this opinion had been implicitly received by them; as it would have prevented their having been so often the dupes of self-interested pretenders, who have either amused them with inert medicines, or have rashly employed those of the most pernicious tendency. I am much disposed to believe the impossibility of a cure of the gout by medicines: and more certainly still inclined to think, that whatever may be the possible power of medicines, yet no medicine for curing the gout has hitherto been found. Although almost every age has presented a new remedy, yet all hitherto offered have very soon been either neglected as useless, or condemned as pernicious.

540. Though unwilling to admit the power of medicines, yet I contend, that a great deal can be done towards the

cure of the gout by a regimen: And from what has been observed (498.), I am firmly persuaded, that any man who, early in life, will enter upon the constant practice of bodily labour, and of abstinence from animal food, will be preserved entirely from the disease.

Whether there be any other means of radically curing the gout I am not ready to determine. There are histories of cases of the gout, in which it is said, that by great emotions of mind, by wounds, and by other accidents, the symptoms have been suddenly relieved, and never again returned; but how far these accidental cures might be imitated by art, or would succeed in other cases, is at least extremely uncertain.

541. The practices proper and necessary in the treatment of the gout, are to be considered under two heads: first, As they are to be employed in the intervals of paroxysms; or, secondly, As during the time of these.

542. In the intervals of paroxysms, the indications are, to prevent the return of paroxysms, or at least to render them less frequent and more moderate. During the time of paroxysms, the indications are, to moderate their violence, and shorten the duration of them as much as can be done with safety to the patient.

543. It has been already observed, that the gout may be entirely prevented by constant bodily exercise, and by a low diet; and I am of opinion, that this prevention may take place even in persons who have a hereditary disposition to the disease. I must add here, that even when the disposition has discovered itself by several paroxysms of inflammatory gout, I am persuaded that labour and abstinence will absolutely prevent any returns of it for the rest of life. These, therefore, are the means of answering the first indication to be pursued in the intervals of paroxysms; and I must here offer some remarks upon the proper use of these remedies.

- 544. Exercise, in persons disposed to the gout, is directed to two purposes: One of these is the strengthening of the tone of the extreme vessels; and the other, the guarding against a plethoric state. For the former, if exercise be employed early in life, and before intemperance has weakened the body, a very moderate degree of it will answer the purpose; and for the latter, if abstinence be at the same time observed, little exercise will be necessary.
- 545. With respect to exercise, this in general is to be observed, that it should never be violent; for, if violent, it cannot be long continued, and must always endanger the bringing on an atony in proportion to the violence of the preceding exercise.
- 546. It is also to be observed, that the exercise of gestation, though considerable and constant, if it be entirely without bodily exercise, will not answer the purpose in preventing the gout. For this end, therefore, the exercise must be in some measure that of the body; and must be moderate, but at the same time constant, and continued through life.
- 547. In every case and circumstance of the gout in which the patient retains the use of his limbs, bodily exercise, in the intervals of paroxysms, will always be useful; and in the beginning of the disease, when the disposition to it is not yet strong, exercise may prevent a paroxysm which otherwise might have come on. In more advanced states of the disease, however, when there is some disposition to a paroxysm, much walking will bring it on; either as it weakens the tone of the lower extremities, or as it excites an inflammatory disposition in them; and it is probable, that in the same manner strains or contusions often bring on a paroxysm of the gout.
- 548. Abstinence, the other part of our regimen (540.) for preventing the gout, is of more difficult application. If an abstinence from animal food be entered upon early in life, while the vigour of the system is yet entire, we have no doubt of its being both safe and effectual; but if the motive for

this diet shall not have occurred till the constitution shall have been broken by intemperance, or by the decline of life, a low diet may then endanger the bringing on an atonic state.

549. Further, if a low diet be entered upon only in the decline of life, and be at the same time a very great change in the former manner of living, the withdrawing of an accustomed stimulus of the system may readily throw this into an atonic state.

550. The safety of an abstemious course may be greater or less according to the management of it. It is animal food which especially disposes to the plethoric and inflammatory state, and that food is to be therefore especially avoided; but, on the other hand, it is vegetable aliment of the lowest quality that is in danger of weakening the system too much, by not affording sufficient nourishment; and, more particularly, of weakening the tone of the stomach by its acescency. It is therefore a diet of a middle nature that is to be chosen; and milk is precisely of this kind, as containing both animal and vegetable matter.

As approaching to the nature of milk, and as being a vegetable matter containing the greatest portion of nourishment, the farinaceous seeds are next to be chosen, and are the food most proper to be joined with milk.

551. With respect to drink, fermented liquors are useful only when they are joined with animal food, and that by their acescency; and their stimulus is only necessary from custom. When, therefore, animal food is to be avoided, fermented liquors are unnecessary; and by increasing the acescency of vegetables, these liquors may be hurtful. The stimulus of fermented or spiritous liquors is not necessary to the young and vigorous; and when much employed, impairs the tone of the system. These liquors therefore are to be avoided, except so far as custom and the declining state of the system may have rendered them necessary. For preventing or moderating the regular gout, water is the only proper drink.

posed, that an abstinence from animal food and fermented liquors, or the living upon milk and farinacea alone, for the space of one year, might be sufficient for a radical cure of the gout: and it is possible that at a certain period of life, in certain circumstances of the constitution, such a measure might answer the purpose. But this is very doubtful; and it is more probable that the abstinence must, in a great measure, be continued, and the milk diet be persisted in for the rest of life. It is well known, that several persons who had entered on an abstemious course, and had been thereby delivered from the gout, have, however, upon returning to their former manner of full living, had the disease return upon them with as much violence as before, or in a more irregular and more dangerous form.

553. It has been alleged, that for preventing the return of the gout, blood-letting, or scarifications of the feet, frequently repeated, and at stated times, may be practised with advantage; but of this I have had no experience.

554. Exercise and abstinence are the means of avoiding the plethoric state which gives the disposition to the gout, and are, therefore, the means proposed for preventing processory, or, at least, for rendering them less frequent and more moderate. But many circumstances prevent the steadiness necessary in pursuing these measures; and, therefore, in such cases, unless great care be taken to avoid the exciting causes, the disease may frequently return; and, in many cases, the preventing of paroxysms is chiefly to be obtained by avoiding those exciting causes enumerated in 504. The conduct necessary for avoiding them, will be sufficiently obvious to persons acquainted with the doctrines of the Hygieine, which I suppose to have been delivered in another place.

555. A due attention in avoiding those several causes (503. 504.), will certainly prevent fits of the gout; and the

taking care that the exciting causes be never applied in a great degree, will certainly render fits more moderate when they do come on. But, upon the whole, it will appear, that a strict attention to the whole conduct of life, is in this matter necessary; and, therefore, when the predisposition has taken place, it will be extremely difficult to avoid the disease.

556. I am indeed firmly persuaded, that, by obviating the predisposition, and by avoiding the exciting causes, the gout may be entirely prevented; but, as the measures necessary for this purpose, will, in most cases, be pursued with difficulty, and even with reluctance, men have been very desirous to find a medicine which might answer the purpose, without any restraint on their manner of living. To gratify this desire, physicians have proposed, and, to take advantage of it, empirics have feigned many remedies, as we have already observed. Of what nature several of these remedies have been, I cannot certainly say; but, of those which are unknown, we conclude, from their having been only of temporary fame, and from their having soon fallen into neglect, that they have been either inert or pernicious, and, therefore, I make no inquiry after them; and shall now remark only upon one or two known remedies for the gout, which have been lately in vogue.

557. One of these is what has been named in England the Portland Powder. This is not a new medicine, but is mentioned by Galen, and, with some little variation in its composition, has been mentioned by the writers of almost every age since that time. It appears to have been at times in fashion, and to have again fallen into neglect; and I think that this last has been owing to its having been found to be, in many instances, pernicious. In every instance which I have known of its exhibition for the length of time prescribed, the persons who had taken it were indeed afterwards free from any inflammatory affection of the joints, but they

were affected with many symptoms of the atonic gout; and all, soon after finishing their course of the medicine, have been attacked with apoplexy, asthma, or dropsy, which proved fatal.

558. Another remedy, which has had the appearance of preventing the gout, is an alkali in various forms, such as the fixed alkali, both mild and caustic, lime-water, soap, and absorbent earths. Since it became common to exhibit these medicines in nephritic and calculous cases, it has often happened that they were given to those who were at the same time subject to the gout; and it has been observed, that, under the use of these medicines, gouty persons have been longer free from the fits of their disease. That, however, the use of these medicines has entirely prevented the returns of gout, I do not know, because I never pushed the use of those medicines for a long time, being apprehensive that the long continued use of them might produce a hurtful change in the state of the fluids.

559. With respect to preventing the gout, I have only one other remark to offer. As the preventing the gout depends very much on supporting the tone of the stomach, and avoiding indigestion; so costiveness, by occasioning this, is very hurtful to gouty persons. It is therefore necessary for such persons to prevent or remove costiveness, and, by a laxative medicine, when needful; but it is at the same time proper, that the medicine employed should be such as may keep the belly regular, without much purging. Aloetics, rhubarb, magnesia alba, or flowers of sulphur, may be employed, as the one or the other may happen to be best suited to particular persons.

560. These are the several measures (from 542. to 559.) to be pursued in the intervals of the paroxysms; and we are next to mention the measures proper during the time of them.

561. As, during the times of paroxysms, the body is in a

feverish state, no irritation should then be added to it; and every part, therefore, of the antiphlogistic regimen (130. to 133.), except the application of cold, ought to be strictly observed.

Another exception to the general rule may occur, when the tone of the stomach is weak, and when the patient has been before much accustomed to the use of strong drink; for then it may be allowable, and even necessary, to give some animal food, and a little wine.

562. That no irritation is to be added to the system during the paroxysms of gout, except in the cases mentioned, is entirely agreed upon among physicians; but it is a more difficult matter to determine whether, during the time of paroxysms, any measures may be pursued to moderate the violence of reaction and of inflammation. Dr Sydenham has given it as his opinion, that the more violent the inflammation and pain, the paroxysms will be the shorter, as well as the interval between the present and next paroxysm longer; and, if this opinion be admitted as just, it will forbid the use of any remedies which might moderate the inflammation; which is, to a certain degree, undoubtedly necessary for the health of the body. On the other hand, acute pain presses for relief; and, although a certain degree of inflammation may seem absolutely necessary, it is not certain but that a moderate degree of it may answer the purpose; and it is even probable, that, in many cases, the violence of inflammation may weaken the tone of the parts, and thereby invite a return of paroxysms. It seems to me to be in this way, that as the disease advances, the paroxysms become more frequent.

563. From these last considerations, it seems probable, that, during the time of paroxysms, some measures may be taken to moderate the violence of the inflammation and pain; and, particularly, that, in first paroxysms, and in the young and vigorous, blood-letting at the arm may be prac-

tised with advantage; but I am persuaded, that this practice cannot be repeated often with safety; because bloodletting not only weakens the tone of the system, but may also contribute to produce plethora. I believe, however, that bleeding by leeches upon the foot, and upon the inflamed part, may be practised, and repeated with greater safety; and I have known instances of its having been practised with safety, to moderate and shorten paroxysms; but how far it may be carried, we have not had experience enough to determine.

- 564. Besides blood-letting, and the antiphlogistic regimen, it has been proposed to employ remedies for moderating the inflammatory spasm of the part affected, such as warm-bathing and emollient poultices. These have sometimes been employed with advantage and safety; but, at other times, have been found to give occasion to a retrocession of the gout.
- 565. Blistering is a very effectual means of relieving and discussing a paroxysm of the gout; but has also frequently had the effect of rendering it retrocedent.
- 566. The stinging with nettles I consider as analogous to blistering; and I think it probable that it would be attended with the same danger.
- 567. The burning with moxa, or other substances, I consider as a remedy of the same kind. I have had, indeed, no evidence of this proving hurtful; but neither have I had any proper evidence of its having proved a radical cure.
- 568. Camphire, and some aromatic oils, have the power of allaying the pain, and of removing the inflammation from the part affected; but these remedies commonly make the inflammation only shift from one part to another, and, therefore, with the hazard of its falling upon a part where it may be more dangerous; and they have sometimes rendered the gout retrocedent.
 - 569. From these reflections (564. et seq.), it will appear,

that some danger must attend every external application to the parts affected, during a paroxysm; and that, therefore, the common practice of committing the person to patience and flannel alone, is established upon the best foundation.

- 570. Opiates give the most certain relief from pain; but, when given in the beginning of gouty paroxysms, occasion these to return with greater violence. When, however, the paroxysms shall have abated in their violence, but still continue to return, so as to occasion painful and restless nights, opiates may be then given with safety and advantage, especially in the case of persons advanced in life, and who have been often affected with the disease.
- 571. When, after paroxysms have ceased, some swelling and stiffness shall remain in the joints, these symptoms are to be discussed by the diligent use of the flesh-brush.

572. Purging, immediately after a paroxysm, will be always employed with the hazard of bringing it on again.

- 573. I have now finished what has occurred to be said upon the means of preventing and curing the regular gout, and shall now consider its management when it has become irregular, of which, as I have observed above, there are three different cases.
- 574. In the first case, which I have named the Atonic Gout, the cure is to be accomplished by carefully avoiding all debilitating causes, and by employing, at the same time, the means of strengthening the system in general, and the stomach in particular.

575. For the avoiding debilitating causes, I must refer to

the doctrines of the Hygieine, as in 554.

576. For strengthening the system in general, I must recommend frequent exercise on horseback, and moderate walking. Cold bathing also may answer the purpose, and be safely employed, if it appear to be powerful in stimulating the system, and be not applied when the extremities are threatened with any pain.

For supporting the tone of the system in general, when threatened with atonic gout, some animal food ought to be employed, and the more acescent vegetables ought to be avoided. In the same case, some wine also may be necessary; but it should be in moderate quantity, and of the least acescent kinds; and, if every kind of wine shall be found to increase the acidity of the stomach, ardent spirits and water must be employed.

577. For strengthening the stomach, bitters and the Peruvian bark may be employed; but care must be taken, that they be not constantly employed for any great length of time. Compare 557.

The most effectual medicine for strengthening the stomach is iron, which may be employed under various preparations; but to me the best appears to be the rust in fine powder, which may be given in very large doses.

For supporting the tone of the stomach, aromatics may be employed, but should be used with caution, as the frequent and large use of them may have an opposite effect; and they should, therefore, be given only in compliance with former habits, or for palliating present symptoms.

When the stomach happens to be liable to indigestion, gentle vomits may be frequently given; and proper laxatives should be always employed, to obviate or to remove costiveness.

578. In the atonic gout, or in persons liable to it, to guard against cold is especially necessary; and the most certain means of doing this, is by repairing to a warm climate during the winter season.

579. In the more violent cases of the atonic gout, blistering the lower extremities may be useful; but that remedy should be avoided when any pain threatens the extremities. In persons liable to the atonic gout, issues may be established in the extremities, as in some measure a supplement to the disease.

580. A second case of the irregular gout, is that which I have named the Retrocedent. When this affects the stomach and intestines, relief is to be instantly attempted by the free use of strong wines, joined with aromatics, and given warm; or if these shall not prove powerful enough, ardent spirits must be employed, and are to be given in a large dose. In moderate attacks, ardent spirits impregnated with garlic, or with assafætida, may be employed; or, even without the ardent spirits, a solution of assafætida with the volatile alkali may answer the purpose. Opiates are often an effectual remedy, and may be joined with aromatics, as in the Electuarium Thebaicum; or they may be usefully joined with volatile alkali and camphire. Musk has likewise proved useful in this disease.

When the affection of the stomach is accompanied with vomiting, this may be encouraged, by taking draughts of warm wine, at first with water, and afterwards without it; having at length recourse, if necessary, to some of the remedies above mentioned, and particularly the opiates.

In like manner, if the intestines be affected with diarrhæa, this is to be at first encouraged, by taking plentifully of weak broth; and when this shall have been done sufficiently, the tumult is to be quieted by opiates.

581. When the retrocedent gout shall affect the lungs, and produce asthma, this is to be cured by opiates, by antispasmodics, and perhaps by blistering on the breast or back.

582. When the gout, leaving the extremities, shall affect the head, and produce pain, vertigo, apoplexy, or palsy, our resources are very precarious. The most probable means of relief, is blistering the head; and if the gout shall have receded very entirely from the extremities, blisters may be applied to these also. Together with these blisterings, aromatics, and the volatile alkali, may be thrown into the stomach.

583. The third case of the irregular gout is what I have named the misplaced, that is, when the inflammatory affection of the gout, instead of falling upon the extremities, falls upon some internal part. In this case, the disease is to be treated by blood-letting, and by such other remedies as would be proper in an idiopathic inflammation of the same parts.

584. Whether the translation so frequently made from the extremities to the kidneys, is to be considered as an instance of the misplaced gout, seems, as we have said before, uncertain: but I am disposed to think it something different; and therefore am of opinion, that in the Nephralgia Calculosa produced upon this occasion, the remedies of inflammation are to be employed no farther than they may be otherwise sometimes necessary in that disease, arising from other causes than the gout.

BOOK III.

OF EXANTHEMATA,

OR ERUPTIVE FEVERS.

ORD. III. EXANTHEMATA.

Morbi contagiosi, semel tantum in decursu vitæ aliquem afficientes; cum febre incipientes; definito tempore apparent phlogoses, sæpe plures, exiguæ per cutem sparsæ.

INTRODUCTION.

585. THE diseases comprehended under this title, which make the third Order of Pyrexia, in our Nosology, are in general such as do not arise but upon occasion of a specific contagion applied, which first produces fever, and afterwards an eruption upon the surface of the body; and which diseases, for the most part, affect persons but once in the

course of their lives.

586. Whether the character of the Order may be thus limited, or if the Order may be allowed to comprehend also the eruptive fevers produced by a matter generated in the body itself, and likewise those cases of eruption which do not depend upon contagion, or upon a matter generated before the fever, but upon a matter generated in the course of the fever, I am not ready to determine. Of the diseases enumerated by the Nosologists as Exanthemata, there are certainly three different kinds, which may be distinguished by the circumstances mentioned in this and the preceding paragraph. Of the first kind are the SmallPox, the Chicken-pox, the Measles, the Scarlet Fever, and the Plague. Of the second kind seems to be the Erysipelas; and of the third kind I judge the Miliaria and Petechia to be. But as I am not sufficiently confident in the facts which should support these distinctions, or which would enable us to apply them in all cases, I go on in this book to treat of almost all the exanthemata enumerated by preceding Nosologists, with only some difference in the arrangement from what it was in my former editions.

CHAP. I.

OF THE SMALL-POX.

G. XXV. VARIOLA.—Synocha contagiosa cum vomitu, et, ex epi-gastrio presso, dolore.

Tertio die incipit, et quinto finitur eruptio papularum phlegmonodearum, quæ, spatio octo dierum, in suppurationem, et in crustas demum abeunt, sæpe cicatrices depressas, sive foveolas in cute, reliquentes.

- Sp. 1. Variola (discreta) pustulis paucis, discretis, circumscriptione circularibus, turgidis; febre, eruptione factâ, protinus cessante.
- Sp. 2. Variola (confluens) pustulis numerosis, confluentibus, circumscriptione irregularibus, flaccidis, parum elevatis; febre post eruptionem perstante.
- 587. The small-pox is a disease arising from a contagion of a specific nature, which first produces a fever, and on the third or fourth day thereof produces an irruption of VOL. I.

small red pimples. These are afterwards formed into pustules, containing a matter, which, in the course of eight days from the time of the eruption, is changed into pus. After this, the matter dries and falls off in crusts.

588. This is a general idea of the disease; but there are two particular forms or varieties of it, well known under the appellations of the Distinct and Confluent, which require

to be specially described.

589. In the former, or the distinct small-pox, the eruptive fever is moderate, and appears to be evidently of the inflammatory kind, or what we name a Synocha. It generally comes on about mid-day, with some symptoms of a cold stage, and commonly with a considerable languor and drow-A hot stage is soon formed, and becomes more considerable on the second and third days. During this course, children are liable to frequent startings from their slumbers; and adults, if they are kept a-bed, are disposed to much sweating. On the third day, children are sometimes affected with one or two epileptic fits. Towards the end of the third day, the eruption commonly appears, and gradually increases during the fourth; appearing first upon the face, and successively on the inferior parts, so as to be completed over the whole body on the fifth day.

From the third day, the fever abates; and against the fifth it entirely ceases. The eruption appears first in small red spots, hardly eminent, but by degrees rising into pimples. These are generally upon the face in small number; but even when more numerous, they are separate and distinct from one another. On the fifth or sixth day, a small vesicle, containing an almost colourless or whey-coloured fluid, appears upon the top of each pimple. For two days, these vesicles increase in breadth only, and there is a small hollow pit in the middle; so that it is only against the eighth day that they are raised into spheroidal pustules.

These vesicles or pustules, from their first formation, con-

tinue to be surrounded with an exactly circular inflamed margin, which, when the pustules are numerous, diffuses some inflammation over the neighbouring skin, so as to give somewhat of a damask rose colour to the spaces between the pustules. As the pustules increase in size, if they be numerous on the face, against the eighth day the whole of the face becomes considerably swelled; and, in particular, the eye-lids are so much swelled as entirely to shut the eyes.

As the disease thus proceeds, the matter in the pustules becomes by degrees more opaque and white, and at length of a yellowish colour. On the eleventh day, the swelling of the face is abated, and the pustules seem quite full. On the top of each a darker spot appears; and at this place the pustule, on the eleventh day, or soon after, is spontaneously broken, and a portion of the matter oozes out; in consequence of which the pustule is shrivelled, and subsides; while the matter oozing out dries, and forms a crust upon its surface. Sometimes a little only of the matter oozes out; and what remains in the pustule becomes thick and even hard. After some days, both the crust and the hardened pustules fall off, leaving the skin, which they covered, of a brown red colour; and it is only after many days that the skin in these places resumes its natural colour. In some cases, where the matter of the pustules has been more liquid, the crusts formed by it are later in falling off, and the part they covered suffers some desquamation, which leaves in it a small pit or hollow.

This is the course of things on the face; and successively the pustules on the rest of the body take the same. The matter of the pustules, on the arms and hands, is frequently absorbed; so that, at the height of the disease, these pustules appear as empty vesicles. On the tenth and eleventh days, as the swelling of the face subsides, a swelling arises in the hands and feet, but which again subsides as the pustules come to maturity.

When the pustules on the face are numerous, some degree of pyrexia appears on the tenth and eleventh days, but disappears again after the pustules are fully ripened; or perhaps remains in a very slight degree till the pustules on the feet have finished their course. It is seldom that in the distinct small-pox the fever continues longer.

When the pustules on the face are numerous, some uneasiness in the throat, with a hoarseness of the voice, comes on upon the sixth or seventh day, and a thin liquid is poured out from the mouth. These symptoms increase with the swelling of the face; and the liquids of the mouth and throat becoming thicker, are more difficultly thrown out. There is at the same time some difficulty of swallowing; so that liquids taken in to be swallowed are frequently rejected, or thrown out by the nose. But all these affections of the fauces abate as the swelling of the face subsides.

590. In the other form of small-pox, or what is called the Confluent, the course of the disease is, in general, the same with what we have described; but the symptoms of every stage are more violent, and several of the circumstances are different.

In particular, the eruptive fever is more violent. The pulse is more frequent and more contracted, approaching to that state of pulse which is found in typhus. The coma is more considerable, and there is frequently a delirium. Vomiting also is a common symptom, especially at the coming on of the disease. In very young infants, epileptic fits are sometimes frequent on the first days of the disease, and sometimes prove fatal before any eruption appears; or they usher in a very confluent and putrid small-pox.

591. The eruption appears more early on the third day, and it is frequently preceded or accompanied with an erysipelatous efflorescence. Sometimes the eruption appears in clusters, like that of the measles. When the cruption is completed, the pimples are always more numerous upon the face, and at the same time smaller and less eminent. After

the eruption, the fever suffers some remission, but never goes off entirely; and after the fifth or sixth day, it again increases, and continues considerable through the remaining course of the disease.

The vesicles formed on the tops of the pimples appear sooner; and while they increase in breadth, do not retain a circular, but are every way of an irregular figure. Many of them run into one another, insomuch that very often the face is covered rather with one vesicle, than with a number of pustules. The vesicles, so far as they are anywise separated, do not arise to a spheroidal form, but remain flat, and sometimes the whole of the face is of an even surface. When the pustules are in any measure separated, their circumference is not bounded by an inflamed margin, and the part of the skin that is free from pustules is commonly pale and flaceid.

The liquor that is in the pustules changes from a clear to an opaque appearance, and becomes whitish or brownish, but never acquires the yellow colour and thick consistence that appear in the distinct small-pox.

592. The swelling of the face which attends the distinct small-pox, when they are numerous, and almost then only, always attends the confluent, comes on more early, and arises to a greater degree; but abates on the tenth day, and on the eleventh still more. At this time the pustules or vesicles break, and, shrivelling, pour out a liquor that is formed into brown or black crusts, which do not fall off for many days after. Those of the face, in falling off, leave the parts they cover subject to a desquamation, which pretty certainly produces pittings.

On the other parts of the body, the pustules of the confluent small-pox are more distinct than upon the face, but never acquire the same maturity and consistence of pus, as in the properly distinct kind.

The salivation, which only sometimes attends the distinct

small-pox, very constantly attends the confluent; and both the salivation and the affection of the fauces above mentioned are, especially in adults, in a higher degree. In infants, a diarrhœa comes frequently in place of the salivation.

In the confluent small-pox, there is often a considerable putrescency of the fluids, as appears from petechiæ, from serous vesicles, under which the skin shows a disposition to gangrene, and from bloody urine, or other hæmorrhagy, all which symptoms frequently accompany this disease.

In the confluent small-pox, the fever, which had only suffered a remission from the time of eruption to that of maturation, is often, at or immediately after this period, renewed with considerable violence. This is what has been called the Secondary Fever; and is, in different cases, of various duration and event.

593. We have thus endeavoured to describe the various circumstances of the small-pox; and from the difference of these circumstances, the event of the disease may be determined. The whole of the prognosis may be nearly comprised in the following propositions:

The more exactly the disease retains the form of the distinct kind, it is the safer; and the more completely the disease takes the form of the confluent kind, it is the more dangerous.

It is only when the distinct kind shows a great number of pustules on the face, or otherwise, by fever or putrescency, approaches to the circumstances of the confluent, that it is attended with any danger.

In the confluent small-pox there is always danger, and this is always more considerable and certain, according as the fever is more violent and permanent, and especially as the marks and symptoms of putrescency are more evident.

When the putrid disposition is very great, the disease sometimes proves fatal before the eighth day; but, in most cases, it is on the eleventh that death happens, and sometimes itis put off till the fourteenth or seventeenth day.

Though the small-pox should not be immediately fatal, the more violent kinds are often followed by a morbid state of the body, of various kind and event. These consequences, as I judge, may be imputed sometimes to an acrid matter produced by the preceding disease, and deposited in different parts, and sometimes to an inflammatory diathesis produced, and determined to particular parts of the body.

594. It is, I think, agreed among practitioners, that, in the different cases of small-pox, the difference chiefly depends upon the appearance of distinct or confluent; and, from the above description of these kinds, it will appear, that they chiefly differ in the period of the eruption, in the number of pustules produced, in the form of the pustules, in the state of the matter contained in them, in the continuance of the fever, and, lastly, in the danger of the disease.

595. Upon inquiring into the causes of these differences, we might readily suspect, that they depended upon a difference of the contagion producing the disease. This, however, is not probable; for there are innumerable instances of the contagion, arising from a person labouring under the small-pox of the distinct kind, producing the confluent, and on the contrary. Since the practice of inoculation became frequent, we have known the same variolous matter produce in one person the distinct, and in another the confluent small-pox. It is therefore highly probable, that the difference of the small-pox does not depend upon any difference of the contagion, but upon some difference in the state of the persons to whom it is applied, or in the state of certain circumstances concurring with the application of the contagion.

596. To find out wherein the difference in the state of the persons to whom the contagion of the small-pox is applied consists, I observe, that the difference between the distinct and confluent small-pox consists especially in the number of

pustules produced, which, in the distinct, are generally few; in the confluent, always many. If, therefore, we shall be able to discover what, in the state of different persons, can give occasion to more or fewer pustules, we shall probably be able to account for all the other differences of the distinct and confluent small-pox.

597. It is evident, that the contagion of the small-pox is a ferment with respect to the human fluids, and assimilates a great part of them to its own nature; and, it is probable, that the quantity thus assimilated is, in proportion to the bulk of their several bodies, nearly the same in different persons. This quantity passes again out of the body, partly by insensible perspiration, and partly by being deposited in pustules; but if the quantities generated be nearly equal, the quantities passing out of the body by the two ways mentioned are very unequal in different persons; and, therefore, if we can explain the causes which determine more to pass by the one way than by the other, we may thereby discover the causes which give occasion to more pustules in one person than in another.

598. The causes which determine more of the variolous matter to pass by perspiration, or to form pustules, are probably certain circumstances of the skin, that determine more or less of the variolous matter to stick in it, or to pass freely through it

599. The circumstances of the skin, which seems to determine the variolous matter to stick in it, is a certain state of inflammation, depending much upon the heat of it. Thus, we have many instances of parts of the body, from being more heated, having a greater number of pustules than other parts. In the present practice of inoculation, in which few pustules are produced, much seems to be owing to the care that is taken to keep the skin cool. Parts covered with plasters, especially with those of a stimulant kind, have more pustules than other parts. Further, certain circumstances,

such as adult age, and full living, determining to a phlogistic diathesis, seem to produce a greater number of pustules, while the contrary circumstances have contrary effects.

- 600. It is therefore probable, that an inflammatory state of the whole system, and more particularly of the skin, gives occasion to a greater number of pustules; and the causes of this may likewise produce most of the other circumstances of the confluent small-pox; such as the period of eruption; the continuance of the fever; the effusion of a more putrescent matter, and less fit to be converted into pus; and, what arises from thence, the form and other circumstances of the pustules.
- 601. Having thus attempted to account for the chief difference which occurs in the state of the small-pox, we shall now try the truth of our doctrine, by its application to practice.
- 602. In considering the practice, we view it first, in general, as suited to render the disease more generally benign and safe, and this by the practice of inoculation.
- 603. It is not necessary here to describe the operation of inoculating; and what we name the practice of inoculation, comprehends all the several measures which precede or follow that operation, and are supposed to produce its salutary effects.

These measures are chiefly the following:

- 1. The choosing for the subject of inoculation, persons otherwise free from disease, and not liable, from their age or other circumstances, to any incidental disease.
- 2. The choosing a person at the time of life most favourable to a mild disease.
- 3. The choosing for the practice a season the most conducive to the mildness of the disease.
- 4. The preparing a person to be inoculated, by abstinence from animal food, for some time before inoculation.
- 5. The preparing the person by courses of mercurial and antimonial medicines.

6. The taking care, at the time of inoculation, to avoid cold, intemperance, fear, or other circumstances which might

aggravate the future disease.

7. After these preparations and precautions, the choosing a fit matter to be employed in inoculation, by taking it from a person of a sound constitution, and free from any disease, or suspicion of it; by taking it from a person who has had the small-pox of the most benign kind; and, lastly, by taking the matter from such persons, as soon as it has appeared in the pustules, either in the part inoculated, or on other parts of the body.

8. The introducing, by inoculation, but a small portion

of the contagious matter.

9. After inoculation, the continuing the vegetable diet, as well as the employment of mercurial and antimonial medicines, and, at the same time, frequently employing purgatives.

10. Both before and after inoculation, taking care to avoid external heat, either from the sun, artificial fires, warm chambers, much clothing, or being much in bed; and, on the contrary, exposing the person to a free and cool air.

11. Upon the appearance of the eruptive fever, the rendering that moderate by the employment of purgatives, by the use of cooling and antiseptic acids, and especially by exposing the person frequently to a cool, and even a cold air, at the same time giving freely of cold drink.

12. After the eruption, the continuing the application of cold air, and the use of purgatives, during the course of the

disease, till the pustules are fully ripened.

604. These are the measures proposed and practised in the latest and most improved state of inoculation; and the advantages obtained by the whole of the practice, or at least by most of the measures above mentioned, are now ascertained, by a long experience, to amount to this, That in ninety-nine cases of the hundred, inoculation gives a distinct

small-pox only, and that also very generally of the mildest form; but it will be still useful, for the proper conduct of inoculation, to consider the importance and utility of the several measures above mentioned, that we may thereby more exactly determine upon what the advantages of inoculation more certainly depend.

605. As the common infection may often seize persons labouring under another disease, which may render the smallpox more violent, it is obvious that inoculation must have a great advantage, by avoiding such concurrence. But, as the avoiding such concurrence may often, in the mean while, leave persons exposed to the common infection, it merits inquiry, whether every diseased state should restrain from the practice of inoculation, or what are the particular diseases that should do so. This is not yet sufficiently ascertained by observation; and we have frequently remarked, that the small-pox have often occurred with a diseased state of the body, without being thereby rendered more violent. In particular, we have observed, that a scrofulous habit, or even the presence of scrofula, did not render the small-pox more violent; and we have observed also, that several diseases of the skin are equally innocent. I am of opinion, that they are the diseases of the febrile kind, or ailments ready to induce or aggravate a febrile state, that especially give the concurrence which is most dangerous with the small-pox. I dare not attempt any general rules; but I am disposed to maintain, that, though a person be in a diseased state, if that state be of uncertain nature and effect, and, at the same time, the small-pox be exceedingly rife, so as to render it extremely difficult to guard against the common infection, it will always be safer to give the small-pox by inoculation, than to leave the person to take them by the common infection.

606. Though inoculation has been practised with safety upon persons of all ages; yet, from what has actually oc-

curred in the cases of common infection, and from several other considerations, there is reason to conclude, that adults are more liable to a violent disease than persons of younger years. At the same time, it is observed, that children, in the time of their first dentition, are liable, from this irritation, to have the small-pox rendered more violent; and that infants, before the time of dentition, upon receiving the contagion of the small-pox, are liable to be affected with epileptic fits, which frequently prove fatal. It is, therefore, upon the whole, evident, that, though circumstances may admit, and even render inoculation at any age proper, yet, for the most part, it will be still more advisable to choose persons at an age, after the first dentition is over, and before the time of puberty.

607. Though inoculation has been practised with safety at every season of the year, yet as it is certain, that the cold of winter may increase the inflammatory, and the heats of summer increase the putrescent state of the small-pox, it is highly probable, that inoculation may have some advantage,

from avoiding the extremes either of heat or cold.

608. Although the original temperament and constitutions of men are not to be readily changed, it is sufficiently certain, that the conditions of the human body may, by various causes, in many respects be occasionally very much changed: and therefore, as the use of animal food may increase both the inflammatory and putrescent state of the human body, so it must render persons, on receiving the contagion of the small-pox, less secure against a violent disease; and therefore inoculation may derive some advantage from abstinence from animal food for some time before the inoculation is performed: but I am of opinion, that a longer time than that usually prescribed may be often necessary; and I am persuaded, that the Scotch mothers who avoid giving their children animal food till they are past the small-pox, render this disease in them of a milder kind.

- 609. I cannot deny that mercurial and antimonial medicines may have some effect in determining to a more free perspiration, and therefore may be of some use in preparing a person for the small-pox; but there are many observations which render me doubtful as to their effect. The quantity of both these medicines, particularly of the antimony commonly employed, is too inconsiderable to produce any effect. It is true that the mercurials have often been employed more freely; but even their salutary effects have not been evident, and their mischievous effects have sometimes appeared. I doubt, therefore, upon the whole, if inoculation derives any advantage from these pretended preparatory courses of medicines.
- 610. As it has been often observed, in the case of almost all contagions, that cold, intemperance, fear, and some other circumstances, concurring with the application of the contagion, have greatly aggravated the future disease, so it must be the same in the case of the small-pox; and it is undoubted, that inoculation must derive a great, and perhaps its principal advantage, from avoiding the concurrences above mentioned.
- 611. It has been commonly supposed, that inoculation has derived some advantage from the choice of the matter employed in it; but, from what has been observed in 595, it must appear very doubtful if any choice be necessary, or can be of any benefit in determining the state of the disease.
- 612. It has been supposed by some, that inoculation has an advantage, by introducing a small portion only of the contagious matter: But this rests upon an uncertain foundation. It is not known what quantity is introduced by the common infection, and it may be a small quantity only. Although it were larger than that thrown in by inoculation, it is not ascertained that the circumstance of quantity would have any effect. A certain quantity of ferment may be necessary to excite fermentation in a given mass; but, that

quantity given, the fermentation and assimilation are extended to the whole mass; and we do not find that a greater quantity than is just necessary, either increases the activity of the fermentation, or more certainly secures the assimilation of the whole. In the case of the small-pox, a considerable difference in the quantity of contagious matter introduced, has not discovered any effect in modifying the dis-

613. Purging has the effect of diminishing the activity of the sanguiferous system, and of obviating its inflammatory state. It is therefore probable, that the frequent use of cooling purgatives is a practice attending inoculation which may be of considerable advantage; and probably it is also useful by diminishing the determination to the skin. It appears to me, that mercurials and antimonials, as they are commonly managed, are useful only as they make a part of the purg-

614. It is probable, that the state of the small-pox depends very much upon the state of the eruptive fever, and particularly upon moderating the inflammatory state of the skin; and therefore, it is probable, that the measures taken for moderating the eruptive fever, and inflammatory state of the skin, afford the greatest improvement which has been made in the practice of inoculation. The tendency of purging, and the use of acids for this purpose, is sufficiently obvious; and upon the same grounds, we should suppose that blood-letting might be useful; but probably this has been omitted, for the same reason that perhaps might have led to the omission of other remedies also, which is, that we have found a more powerful and effectual one in the application of cold air, and the use of cold drink. Whatever doubts or difficulties our theory might present to us, on this subject, they may be entirely neglected, as the practice of Indostan had long ago, and the practice of this country has lately, by a large and repeated experience, ascertained the

safety and efficacy of this remedy; and as it may, and can be more certainly employed with the practice of inoculation, than it can be in cases of common infection, it must give a singular advantage to the former.

appeared on the face, the continuing the application of cold air, and the employment of purgatives, has indeed been the practice of many inoculators: but, I think, these practices cannot be said to give any peculiar advantages to inoculation; for when the state of the eruption is determined, when the number of pustules is very small, and the fever has entirely ceased, I hold the safety of the disease to be absolutely ascertained, and the further use of remedies entirely superfluous. In such cases, I judge the use of purgatives to be not only unnecessary, but that they may be often hurtful.

616. I have thus considered the several circumstances and practices accompanying inoculation, and have endeavoured to ascertain the utility and importance of each. Upon the whole, I hope I have sufficiently ascertained the general utility and great advantage of this practice, especially consisting in this, that if certain precautions, preparations, and remedies are of importance, all of them can be employed with more certainty in the practice of inoculation, than in the case of common infection.

It remains now that I should offer some remarks on the conduct of the small-pox, as received by infection, or even when, after inoculation, the symptoms shall prove violent. The latter sometimes happens, although every precaution and remedy have been employed. The cause of this is not well known; but it appears to me to be commonly owing to a disposition of the fluids to putrescency. But, however this may be, it will appear, that not only in the case of common infection, but even in that of inoculation, there may be occasion for studying the conduct of this disease, in all its possible varying circumstances.

617. When, from the prevailing of small-pox as an epidemic, and more especially when it is known that a person not formerly affected with the disease has been exposed to the infection, if such person should be seized with the symptoms of fever, there can be little doubt of its being an attack of the small-pox; and therefore he is to be treated in every respect as if the disease had been received by inoculation. He is to be freely exposed to a cool air, to be purged, and to have cooling acids given liberally.

618. If these measures moderate the fever, nothing more is necessary: But if the nature of the fever attacking a person be uncertain; or if, with suspicions of the small-pox, the symptoms of the fever be violent; or even if, knowing the disease to be small-pox, the measures mentioned 597. shall not moderate the fever sufficiently, it will be proper to let some blood; and this will be more especially proper, if the person be an adult, of a plethoric habit, and accustomed to full living.

619. In the same circumstances, we judge it will be always proper to give a vomit, as useful in the commencement of all fevers, and more especially in this, where a determination to the stomach appears from pain and spontaneous

vomiting.

620. It frequently happens, especially in infants, that during the eruptive fever of the small-pox, convulsions occur. Of these, if only one or two fits appear on the evening preceding the eruption, they give a favourable prognostic of a mild disease, and require no remedy; but if they occur more early, and be violent and frequently repeated, they are very dangerous, and require a speedy remedy. For this purpose, bleeding is hardly ever of service; blistering always comes too late; and the only remedy I have found effectual, is an opiate given in a large dose.

621. These are the remedies necessary during the eruptive fever; and if, upon the eruption, the pimples upon the face be very few and distinct, the disease is no further of any danger, requires no remedies, and the purgatives which, as has been said before, are by some practitioners continued, prove often hurtful.

But when, upon the eruption, the pimples on the face are very numerous; when they are not distinct; and especially when, upon the fifth day, the fever does not suffer a considerable remission, the disease will still require a great deal of attention.

622. If, after the eruption, the fever shall continue, the avoiding heat, and the continuing to expose the body to a cool air, will still be proper. If the fever be considerable, with a full and hard pulse, in an adult person, a bleeding will be necessary, and more certainly a cooling purgative. It is however seldom that a repetition of the bleeding will be proper, as a loss of strength does usually come on very soon; but the repetition of a purgative, or the frequent use of laxative glysters, is commonly useful.

623. When a loss of strength, with other marks of a putrescent tendency of the fluids, appears, it will be necessary to exhibit the Peruvian bark in substance, and in large quantity. In the same case, the free use of acids and of nitre is useful; and it is commonly proper also to give wine very freely.

624. From the fifth day of the disease, onward through the whole course of it, it is proper to give an opiate once or twice a-day; taking care, at the same time, to obviate costiveness, by purgatives, or laxative glysters.

625. In a violent disease, from the eighth to the eleventh day, it is proper to lay on blisters successively on different parts of the body, and that without regard to the parts being covered with pustules.

626. If, in this disease, the tumour of the fauces be considerable; the deglutition difficult; the saliva and mucus viscid, and with difficulty thrown out, it will be proper to

apply blisters to the external fauces, and to employ dili-

gently detergent gargles.

627. During the whole course of the disease, when any considerable fever is present, the frequent exhibition of antimonial medicines, in nauseating doses, has been found useful; and these, for the most part, sufficiently answer the purpose of purgatives.

628. The remedies mentioned from 622. to 626. are those frequently necessary from the fifth day till the suppuration is finished. But as, after that period, the fever is sometimes continued and increased; or, as sometimes, when, after there has been little or no fever before, a fever now arises, and continues with considerable danger; this is what is called the Secondary Fever, and requires particular treatment.

629. When the secondary fever follows the distinct smallpox, and the pulse is full and hard, the case is to be treated as an inflammatory affection, by bleeding and purging. But if the secondary fever follow the confluent small-pox, and be a continuance or exacerbation of the fever which had subsisted before, it is to be considered as of the putrid kind; and in that case bleeding is improper. Some purging may be necessary; but the remedies to be chiefly depended on are the Peruvian bark and acids.

When the secondary fever first appears, whether it is after a distinct or a confluent small-pox, it will be useful to exhibit an antimonial emetic in nauseating doses, but in such a manner as to produce some vomiting.

630. For avoiding the pits which frequently follow the small-pox, many different measures have been proposed; but none of them appear to be sufficiently certain.

CHAP. II.

OF THE CHICKEN-POX.

631. This disease seems to depend upon a specific contagion, and to affect persons but once in their lives. It is hardly ever attended with any danger; but as it seems frequently to have given occasion to the supposition of a person's having the small-pox twice, it is proper to study this disease, and to distinguish it from the genuine small-pox.

632. This may be generally done by attending to the fol-

lowing circumstances:

The eruption of the chicken-pox comes on with very little fever preceding it, or with fever of no determined duration.

The pimples of the chicken-pox, more quickly than those of the small-pox, are formed into little vesicles or pustules.

The matter in these pustules remains fluid, and never acquires the colour or consistence of the pus which appears in the pustules of the small pox.

The pustules of the chicken-pox are always, in three or four days from their first appearance, formed into crusts.

See Dr Heberden in Med. Transact. vol. i. art. 17.

CHAP. III.

OF THE MEASLES.

633. This disease also depends upon a specific contagion, and affects persons but once in their lives.

634. It occurs most frequently in children; but no age is exempted from it, if the persons have not been subjected to it before.

635. It commonly appears as an epidemic, first in the month of January, and ceases soon after the summer solstice; but various accidents, introducing the contagion, may

produce the disease at other times of the year.

636. The disease always begins with a cold stage, which is soon followed by a hot, with the ordinary symptoms of thirst, heat, anorexia, anxiety, sickness and vomiting; and these are more or less considerable in different cases. Sometimes from the beginning the fever is sharp and violent; often, for the first two days, it is obscure and inconsiderable, but always becomes violent before the eruption, which usually happens upon the fourth day.

637. This eruptive fever, from its commencement, is always attended with hoarseness, with a frequent hoarse dry cough, and frequently with some difficulty of breathing. At the same time, the eye-lids are somewhat swelled, the eyes are a little inflamed, and pour out tears; and, together with these symptoms, there is a coryza and frequent sneezing. For the most part, a constant drowsiness attends the begin-

ning of this disease.

638. The eruption, as we have said, commonly appears upon the fourth day, first on the face, and successively on the lower parts of the body. It discovers itself first in small red points; but soon after a number of these appear in clusters, which do not rise into visible pimples, but by the touch are found to be a little prominent. This is the case on the face; but on other parts of the body, the prominence, or roughness, is hardly to be perceived. On the face the eruption retains its redness, or has that increased for two days: but on the third, the vivid redness is changed to a brownish red; and in a day or two more, the eruption entirely disappears, while a mealy desquamation takes place. During the whole time of the eruption, the face is somewhat turgid, but seldom considerably swelled.

- 639. Sometimes, after the eruption has appeared, the fever ceases entirely: but this is seldom the case; and more commonly the fever continues, or is increased after the eruption, and does not cease till after the desquamation. Even then the fever does not always cease, but continues with various duration and effect.
- 640. Though the fever happen to cease upon the eruption's taking place, it is common for the cough to continue till after the desquamation, and sometimes much longer.

In all cases, while the fever continues, the cough also continues, generally with an increase of the difficulty of breathing; and both of these symptoms sometimes arise to a degree that denotes a pneumonic affection. This may arise at any period of the disease; but very often it does not come on till after the desquamation of the eruption.

After the same period also, a diarrhœa frequently comes on, and continues for some time.

- 641. It is common for the measles, even when they have not been of a violent kind, to be succeeded by inflammatory affections, particular ophthalmia and phthisis.
- 642. If the blood be drawn from a vein during the measles, with the circumstances necessary to favour the separation of the gluten, this always appears separated, and lying on the surface of the crassamentum, as in inflammatory diseases.
- 643. For the most part, the measles, even when violent, are without any putrid tendency; but in some cases such a tendency appears, both in the course of the disease, and especially after the ordinary course of it is finished. See Dr Watson, in London Med. Observations, vol. iv. art. xi.
- 644. From what is delivered (from 637. to 642.) it will appear, that the measles are distinguished by a catarrhal affection, and by an inflammatory diathesis to a considerable de-

gree; and therefore the danger attending them arises chiefly from the coming on of a pneumonic inflammation.

645. From this consideration it will be obvious, that the remedies especially necessary are those which may obviate and diminish the inflammatory diathesis, and therefore, in a particular manner, blood-letting. This remedy may be employed at any time in the course of the disease, or after its ordinary course is finished. It is to be employed more or less according to the urgency of the symptoms of fever, cough, and dyspnæa; and generally may be employed very freely. But as the symptoms of pneumonic inflammation seldom come on during the eruptive fever; and as this fever is sometimes violent immediately before the eruption, though a sufficiently mild disease be to follow; so bleeding is seldom very necessary during the eruptive fever, and may often be reserved for the periods of greater danger which are perhaps to ensue.

646. In all cases of measles, where there are no marks of putrescency, and where there is no reason, from the known nature of the epidemic, to apprehend putrescency, bleeding is the remedy to be depended upon: but assistance may also be obtained from cooling purgatives, and particularly from blistering on the sides, or between the shoulders.

647. The dry cough may be alleviated by the large use of demulcent pectorals, mucilaginous, oily, or sweet. It may however be observed, with respect to these demulcents, that they are not so powerful in involving and correcting the acrimony of the mass of blood as has been imagined; and that their chief operation is by besmearing the fauces, and thereby defending them from the irritation of acrids, either arising from the lungs, or distilling from the head.

648. For moderating and quieting the cough in this disease, opiates certainly prove the most effectual means, whenever they can be safely employed. In the measles, in which an inflammatory state prevails in a considerable degree, opi-

ates may be supposed to be inadmissible; and in those cases in which a high degree of pyrexia and dyspnœa show either the presence, or at least the danger of pneumonic inflammation, I think that opiates might be very hurtful. In cases, however, in which the dyspnœa is not considerable, and where bleeding, to obviate or abate the inflammatory state, has been duly employed, and where the cough and watchfulness are the urgent symptoms, I think that opiates may be safely exhibited, and with great advantage. I think, further, that in all the exanthemata, there is an acrimony diffused over the system, which gives a considerable irritation; and for obviating the effects of this, opiates are useful, and always proper, when no particular contra-indication prevails.

649. When the desquamation of the measles is finished, though there should then be no disorder remaining, physicians have thought it necessary to purge the patient several times, with a view to draw off the dregs of this disease, that is, a portion of the morbific matter which is supposed to remain long in the body. I cannot reject this supposition; but at the same time cannot believe, that the remains of the morbific matter, diffused over the whole mass of blood, can be entirely drawn off by purging; and it appears to me, that, to avoid the consequences of the measles, it is not the drawing off the morbific matter which we need to study, so much as the obviating and removing the inflammatory state of the system which had been induced by the disease. With this last view, indeed, purging may still be a proper remedy; but bleeding, in proportion to the symptoms of inflammatory disposition, is yet more so.

650. From our late experience of the benefit of cold air in the eruptive fever of the small-pox, some physicians have been of opinion that the practice might be transferred to the measles, but we have not yet had trials sufficient to ascertain this. There is no doubt that external heat may be very

hurtful in the measles, as in most other inflammatory diseases; and, therefore, the body ought to be kept in a moderate temperature during the whole course of the measles; but how far, at any period of the disease, cold air may be applied with safety, we are yet uncertain. Analogy, though so often the resource of physicians, is in general fallacious; and further, though the analogy with the small-pox might lead to the application of cold air during the eruptive fever of the measles, the analogy with catarrh seems to be against the practice. After the eruption had appeared upon the skin, we have had many instances of cold air making it disappear, and thereby producing much disorder in the system; and have also had frequent examples of such disorder being removed by restoring the heat of the body, and thereby again bringing forth the eruption.

CHAP. IV.

OF THE SCARLET FEVER.

G. XXVIII. Scarlatina.—Synocha contagiosa. Quarto morbi die, facies aliquantum tumens; simul in cute passim rubor floridus, maculis amplis, tandem coalescentibus, post tres dies in squamulas furfuraceas abiens; superveniente dein sæpe anasarcâ.

Sp. 1. Scarlatina (simplex) nullà comitante cynanche.

Sp. 2. Scarlatina (cynanchica) cum cynanche ulcerosá.

^{651.} It may be doubted if the scarlet fever be a disease specifically different from the cynanche maligna above described. The latter is almost always attended with a scarlet

eruption; and in all the instances I have seen of what may be called the scarlet fever, the disease, in almost every person affected, has been attended with an ulcerous sore throat.

652. This view of the matter may create some doubt; but I am still of opinion, that there is a scarlet fever which is a disease specifically different from the cynanche maligna.

Dr Sydenham has described a scarlet fever, which he had seen prevailing as an epidemic, with all the circumstances of the fever and eruption, without its being accompanied with any affection of the throat; at least he does not take notice of any such affection, which such an accurate observer could not fail to have done, if any such symptom, as we have commonly seen making a principal part of the disease, had attended those cases which he had observed. Several other writers have described the scarlet fever in the same manner, and I know physicians who have seen the disease in that form; so that there can be no doubt of there being a scarlet fever not necessarily connected with an ulcerous sore throat, and therefore a disease different from the cynanche maligna.

653. But, further, although in all the instances of scarlet fever which I have seen (and in the course of forty years I have seen it six or seven times prevailing as an epidemic in Scotland), the disease, in almost all the persons affected, was attended with an ulcerous sore throat, or was what Sauvages names the Scarlatina Anginosa; and although, in some instances, the ulcers of the throat were of a putrid and gangrenous kind, and at the same time the disease in all its symptoms resembled very exactly the cynanche maligna; yet, I am still persuaded, that not only the scarlatina of Sydenham, but that even the scarlatina anginosa of Sauvages, is a different disease from the cynanche maligna; and I have formed this opinion from the following considerations:

654. 1st, There is a scarlet fever entirely free from any affection of the throat, which sometimes prevails as an epidemic; and therefore there is a specific contagion produ-

cing a scarlet eruption without any determination to the throat.

2dly, The scarlatina, which, from its matter being generally determined to the throat, may be properly termed anginosa, has, in many cases of the same epidemic, been without any affection of the throat; and therefore the contagion may be supposed to be more especially determined to produce the eruption only.

3dly, Though in all the epidemics that I could allege to be those of the scarlatina anginosa, there have been some cases which, in the nature of the ulcers, and in other circumstances, exactly resembled the cases of the cynanche maligna, yet I have as constantly remarked, that these cases have not been above one or two in a hundred, while the rest have all of them been with ulcers of a benign kind, and with circumstances hereafter to be described, somewhat different from those of the cynanche maligna.

4thly, On the other hand, as I have two or three times seen the cynanche maligna epidemically prevailing; so among the persons affected, I have seen instances of cases as mild as those of the scarlatina anginosa usually are: but here the proportion was reversed; and these mild cases were not one-fifth of the whole, while the rest were of the putrid and malignant kind.

Lastly, It applies to the same purpose to observe, that of the cynanche maligna, most of the instances terminate fatally; while, on the other hand, that is the event of very few

of the cases of the scarlatina anginosa.

655. From these considerations, though it may appear that there is some affinity between the cynanche maligna and scarlatina anginosa, it will still remain probable that the two diseases are specifically different. I have been at some pains to establish this opinion; for, from all my experience, I find that those two diseases require a different treatment; and I therefore now proceed to mention more particularly the circumstances of the scarlatina anginosa.

656. This disease commonly appears about the beginning of winter, and continues throughout that season. It comes on with some cold shivering, and other symptoms of the fever which usually introduces the other exanthemata. But here there is no cough, nor the other catarrrhal symptoms which attend the measles; nor is there that anxiety and vomiting which commonly introduce the confluent small-pox, and which more certainly introduce the Cynanche Maligna.

Early in the disease, some uneasiness is felt in the throat; and frequently the deglutition is difficult, generally more so than in the cynanche maligna. Upon looking into the fauces, a redness and swelling appear, in colour and bulk approaching to the state of these symptoms in the cynanche tonsillaris; but in the scarlatina, there is always more or less of sloughs, which seldom appear in the cynanche tonsillaris, and the sloughs are commonly whiter than those in the cynanche maligna.

While these appearances are discovered in the fauces, upon the third or fourth day a scarlet eruption appears on the skin, in the same form as described in 314. This eruption is commonly more considerable and universal than in the cynanche; but it seldom produces a remission of the fever. The eruption for the most part remains till the third or fourth day after its first appearance; but then goes off, ending in a mealy desquamation. At this time the fever usually subsides; and generally at the same time some degree of sweat comes on.

The sloughs on the fauces, which appeared early in the disease, continue for some days; but then falling off, discover the swelling abated, and an ulcer formed on one or both tonsils showing a laudable pus; and soon after the fever has subsided, these ulcers heal up entirely. For the most part this disease has much less of coryza attending it than the cynanche maligna; and when there is a coryza attending the scarlatina, the matter discharged is less acrid,

and has not the fetid smell which it has in the other disease.

In the scarlatina, when the eruption has entirely disappeared, it frequently happens, that in a few days after, the whole body is affected with an anasarcous swelling; which however in a few days more gradually subsides.

We have thus described the most common circumstances of the scarlatina anginosa; and have only to add, that during the time of its being epidemic, and especially upon its first setting in, there are always a few cases in which the circumstances of the disease approach very nearly to those of the cynanche maligna; and it is only in these instances that the disease is attended with any danger.

657. With respect to the cure of this disease, when the symptoms of it are nearly the same with those of the cynanche maligna, it requires exactly the same treatment as directed in 317.

658. When the scarlet fever appears, without any affection of the throat, the treatment of it is very simple, and is delivered by Dr Sydenham. An antiphlogistic regimen is commonly all that is requisite; avoiding, on one hand, the application of cold air; and, on the other, any increase of external heat.

659. In the ordinary state of the scarlatina anginosa, the same treatment is in most cases sufficient; but as here the fever is commonly more considerable, and there is likewise an affection of the throat, some remedies may be often necessary.

660. When there is a pretty high degree of fever, with a full pulse, and a considerable swelling of the tonsils, bleeding is very proper, especially in adults; and it has been frequently practised with advantage: But as, even in the cynanche tonsillaris, much bleeding is seldom necessary (305); so, in the scarlatina, when the state of the fever and the appearances of the fauces render the nature of the disease ambiguous, bleeding may be omitted; and if not altogether

avoided, it should at least not be large, and ought not to be

repeated.

661. Vomiting, and especially nauseating doses of emetics, notwithstanding the inflamed state of the fauces, have been found very useful in this disease. An open belly is proper in every form of this disease; and when the nauseating doses of emetics operate a little downwards, they are more serviceable.

- 662. In every form of the scarlatina anginosa, through the whole course of it, detergent gargles should be employed, and more or less as the quantity of sloughs and the viscid mucus in the fauces may seem to require.
- 663. Even in the milder states of the scarlatina anginosa, it has been common with practitioners to exhibit the Peruvian bark through the whole course of the disease; but we are assured, by much experience, that in such cases it may be safely omitted, though in cases anywise ambiguous, it may not be prudent to neglect this remedy.
- 664. The anasarcous swelling, which frequently follows the scarlatina anginosa, seldom requires any remedy; and, at least, the purgatives so much inculcated, and so commonly exhibited, soon take off the anasarca.

CHAP. V.

OF THE PLAGUE.

G. XXIX. Pestis.—Typhus maxime contagiosa cum summâ de bilitate. Incerto morbi die, eruptio bubonum vel anthracum.

Sect. I .- Of the Phenomena of the Plague.

665. The Plague is a disease which always arises from contagion; which affects many persons about the same time;

proves fatal to great numbers; generally produces fever; and in most persons is attended with buboes or carbuncles.

666. These are the circumstances, which, taken together, give the character of the disease; but it is accompanied with many symptoms almost peculiar to itself, that, in different persons, are greatly diversified in number and degree, and should be particularly studied. I would wish to lay a foundation for this; but think it unfit for a person who has never seen the disease to attempt its particular history. For this, therefore, I must refer to the authors who have written upon this subject; but allowing those only to be consulted, who have themselves seen and treated this disease in all its different forms.

667. From the accounts of such authors, it appears to me, that the circumstances which particularly distinguish this disease, and especially the more violent and dangerous states of it, are,

1st, The great loss of strength in the animal functions,

which often appears early in the disease.

2dly, The stupor, giddiness, and consequent staggering, which resembles drunkenness, or the headach, and various delirium; which are all of them symptoms denoting a great disorder in the functions of the brain.

3dly, The anxiety, palpitation, syncope, and especially the weakness and irregularity of the pulse, which denote a considerable disturbance in the action of the heart.

4thly, The nausea and vomiting, particularly the vomiting of bile, which shows an accumulation of vitiated bile in the gall-bladder and biliary ducts, and from thence derived into the intestines and stomach; all of which symptoms I suppose to denote a considerable spasm, and loss of tone, in the extreme vessels on the surface of the body.

5thly, The buboes or carbuncles, which denote an acri-

mony prevailing in the fluids. And,

Lastly, The petechiæ, hæmorrhagies, and colliquative

diarrhœa, which denote a putrescent tendency prevailing to a great degree in the mass of blood.

668. From the consideration of all these symptoms, it appears, that the plague is especially distinguished by a specific contagion, often suddenly producing the most considerable symptoms of debility in the nervous system or moving powers, as well as of a general putrescency in the fluids; and it is from the consideration of these circumstances as the proximate cause, that I think both the prevention and cure of the plague must be directed.

669. If this disease should revisit the northern parts of Europe, it is probable, that, at the time, there will be no physician then alive, who, at the first appearance of the disease, can be guided by his former experience, but must be instructed by his study of the writers on this subject, and by analogy. It is, therefore, I hope, allowable for me, upon the same grounds, to offer here my opinion with respect to both the prevention and cure of this disease.

This paragraph was written before I had any notice of the plague of Moscow, anno 1771; but I think it will still apply to the case of Great Britain, and of many other northern states.

Sect. II .- Of the Prevention of the Plague.

670. With respect to the prevention: As we are firmly persuaded that the disease never arises in the northern parts of Europe, but in consequence of its being imported from some other country; so the first measure necessary, is the magistrate's taking care to prevent the importation; and this may generally be done, by a due attention to bills of health, and to the proper performance of quarantains.

671. With respect to the latter, we are persuaded, that the quarantain of persons may safely be much less than forty days; and, if this were allowed, the execution of the qua-

rantain would be more exact and certain, as the temptation to break it would be in a great measure removed.

672. With respect to the quarantain of goods, it cannot be perfect, unless the suspected goods be unpacked and duly ventilated, as well as the other means employed for correcting the infection they may carry; and, if all this were properly done, it is probable that the time commonly prescribed for the quarantain of goods might also be shortened.

673. A second measure, in the way of prevention, becomes requisite, when an infection has reached and prevailed in any place, to prevent that infection from spreading into other places. This can be done only by preventing the inhabitants, or the goods of any infected place, from going out of it, till they have undergone a proper quarantain.

674. The third measure for prevention, to be employed with great care, is to hinder the infection from spreading among the inhabitants of the place in which it has arisen. The measures necessary for this, are to be directed by the doctrine laid down in 82.; and from that doctrine we infer, that all persons who can avoid any near communication with infected persons or goods, may escape the infection.

675. For avoiding such communication, a great deal may be done by the magistrate; 1. By allowing as many of the inhabitants as are free from the infection, and not necessary to the service of the place, to go out of it: 2. By prohibiting all assemblies, or unnecessary intercourse of the people: 3. By taking care that necessary communications be performed without contact; 4. By making such arrangements and provisions as may render it easy for the families remaining to shut themselves up in their own houses: 5. By allowing persons to quit houses in which an infection appears, upon condition that they go into lazarettos; 6. By ventilating and purifying, or destroying, at the public expense, all infected goods: Lastly, By avoiding hospitals, and providing separate apartments for infected persons.

The execution of these measures will require great authority and much vigilance and attention on the part of the magistrate; but it is not our province to enter into any detail on the subject of the public police.

676. The fourth and last part of the business of prevention respects the conduct of persons necessarily remaining in infected places, especially of those obliged to have some communication with persons infected.

677. Of those obliged to remain in infected places, but not obliged to have any near communication with the sick, they may be preserved from the contagion, by avoiding all near communication with other persons, or their goods; and it is probable that a small distance will answer the purpose, if, at the same time, there be no stream of air to carry the effluvia of persons or goods to some distance.

678. For those who are necessarily obliged to have a near communication with the sick, it is proper to let them know, that some of the most powerful contagions do not operate, but when the bodies of men exposed to the contagion are in certain circumstances which render them more liable to be affected by it, or when certain causes concur to excite the power of it; and, therefore, by avoiding these circumstances and causes, they may often escape infection.

679. The bodies of men are especially liable to be affected by contagions, when they are anywise considerably weakened by want of food, and even by a scanty diet, or one of little nourishment; by intemperance in drinking, which, when the stupor of intoxication is over, leaves the body in a weakened state; by excess in venery; by get a fatigue; or by any considerable evacuation.

680. The causes which, concurring with contagion, render it more certainly active, are, cold, fear, and full living.

The several means, therefore, of avoiding or guarding against the action of cold (94. to 96.) are to be carefully studied.

681. Against fear the mind is to be fortified as well as possible, by inspiring a favourable idea of the power of preservative means; by destroying the opinion of the incurable nature of the disease; by occupying men's minds with business or labour; and by avoiding all objects of fear, as funerals, passing bells, and any notice of the death of particular friends.

682. A full diet of animal food increases the irritability of the body, and favours the operation of contagion; and indigestion, whether from the quantity or quality of food, has the same effect.

683. Besides giving attention to obviate the several circumstances (610, 679, 682.) which favour the operation of contagion, it is probable, that some means may be employed for strengthening the bodies of men, and thereby enabling them to resist contagion.

For this purpose, it is probable, that the moderate use of wine, or of spirituous liquors, may have a good effect.

It is probable also, that exercise, when it can be employed, if so moderate as to be neither heating nor fatiguing to the body, may be employed with advantage.

Persons who have tried cold bathing, and commonly feel invigorating effects from it, if they are anywise secure against having already received infection, may possibly be enabled to resist it by the use of the cold bath.

It is probable that some medicines also may be useful in enabling men to resist infection; but amongst these I can hardly admit the numerous alexipharmics formerly proposed, or, at least, very few of them, and those only of tonic power. Amongst these last we reckon the Peruvian bark; and it is perhaps the most effectual. If any thing is to be expected from antiseptics, I think camphire, whether internally or externally employed, is one of the most promising.

Every person is to be indulged in the use of any means of preservation of which he has conceived a good opinion, whe-

ther it be a charm or a medicine, if the latter be not directly hurtful.

Whether issues be useful in preserving from, or in moderating the effects of contagion, I cannot determine from the observations I have yet read.

684. As neither the atmosphere in general, nor any considerable portion of it, is tainted or impregnated with the matter of contagions; so the lighting of fires over a great part of the infected city, or other general fumigations in the open air, are of no use for preventing the disease, and may perhaps be hurtful.

685. It would probably contribute much to check the progress of infection, if the poor were enjoined to make a frequent change of clothing, and were suitably provided for that purpose, and if they were, at the same time, induced to make a frequent ventilation of their houses and furniture.

Sect. III .- Of the Cure of the Plague.

686. In the cure of the plague, the indications are the same as those of fever in general (126.); but here they are not all equally necessary and important.

687. The measures for moderating the violence of reaction, which operate by diminishing the action of the heart and arteries (128.), have seldom any place here, excepting so far as the antiphlogistic regimen is generally proper. Some physicians, indeed, have recommended bleeding; and there may occur cases in which bleeding may be useful; but, for the most part, it is unnecessary, and, in many cases, it might be very hurtful.

Purging has also been recommended, and, in some degree, it may be useful, in drawing off the bile, or other putrescent matters frequently present in the intestines; but a large evacuation this way may certainly be hurtful.

688. The moderating the violence of reaction, so far as it can be done by taking off the spasm of the extreme vessels (151.), is a measure of the utmost necessity in the cure of the plague; and the whole of the means (152. to 200.) suited to this indication are extremely proper.

689. The giving an emetic, at the very first approach of the disease, would probably be of great service; and it is likely, that at some other periods of the disease, emetics might be useful, both by evacuating bile abundant in the alimentary canal, and by taking off the spasm of the extreme vessels.

690. From some principles with respect to fever in general, and with respect to the plague in particular, I am of opinion, that after the exhibition of the first vomit, the body should be disposed to sweat, which ought to be raised to a moderate degree only, but continued for at least twenty-four hours, or longer, if the patient bear it easily.

691. The sweating should be excited and conducted agreeably to the rules laid down in 168. It is to be promoted by the plentiful use of diluents, rendered more grateful by vegetable acids, or more powerful by being impregnated with some portion of neutral salts.

692. To support the patient under the continuance of the sweat, a little weak broth, acidulated with juice of lemons, may be given frequently, and sometimes a little wine, if the heat of the body be not considerable.

693. If sudorific medicines are judged to be necessary, opiates are the most effectual and safe; but they should not be combined with aromatics; and probably may be more effectual, if joined with a portion of emetics, and of neutral salts.

694. If, notwithstanding the use of emetics and sudorifics, the disease should still continue, the cure must depend upon the employment of means for obviating debility and putrescency; and for this purpose, the various remedies proposed

above (from 201. to 227.), may be all administered, but especially the tonics; and of these the chief are cold drink and the Peruvian bark.

695. In the cure of the plague, some attention is due to the management of buboes and carbuncles; but we do not touch this, as it belongs to the province of surgery.

CHAP. VI.

OF ERYSIPELAS, OR ST ANTHONY'S FIRE.

- G. XXX. Erysipelas.—Synocha duorum vel trium dierum, plerumque cum somnolentiâ, sæpe cum delirio.
- Sp. 1. Erysipelas (vesiculosum) erythemate, rubedine serpente, latum spatium occupante, et locis ejus quibusdam in vesiculas magnas abeunte.
- Sp. 2. Erysipelas (phlyctænodes) erythemate ex papulis pluribus, trunci corporis partes præcipue occupantibus, et protinus in phlyctænas sive vesiculas parvas abeuntibus.
- 696. In 274. I mentioned the distinction which I proposed to make between the diseases to be named the Erythema and the Erysipelas; and from thence it will appear, that erysipelas, as an Erythema following fever, may have its place here.
- 697. I suppose the erysipelas to depend on a matter generated within the body, and which, analogous to the other cases of exanthemata, is, in consequence of fever, thrown out upon the surface of the body. I own it may be difficult to apply this to every particular case of erysipelas; but I take the case in which it is generally supposed to apply, that of

the erysipelas of the face; which I shall therefore consider here.

698. The erysipelas of the face comes on with a cold shivering, and other symptoms of pyrexia. The hot stage of this is frequently attended with a confusion of head, and some degree of delirium; and almost always with drowsiness, or perhaps coma. The pulse is always frequent, and commonly full and hard.

or at most three days, there appears on some part of the face, a redness, such as that described in 275. as the appearance of Erythema. This redness, at first, is of no great extent; but gradually spreads from the part it first occupied to the other parts of the face, commonly till it has affected the whole; and frequently from the face it spreads over the hairy scalp, or descends on some part of the neck. As the redness spreads, it commonly disappears, or at least decreases in the parts it had before occupied. All the parts upon which the redness appears, are at the same time affected with some swelling, which continues for some time after the redness has abated. The whole face becomes considerably turgid; and the eye-lids are often so much swelled, as entirely to shut up the eyes.

700. When the redness and swelling have proceeded for some time, there commonly arise, sooner or later, blisters of a larger or smaller size, on several parts of the face. These contain a thin yellowish or almost colourless liquor, which sooner or later runs out. The surface of the skin, in the blistered places, sometimes becomes livid and blackish; but this livor seldom goes deeper than the surface, or discovers any degree of gangrene affecting the skin. On the parts of the surface not affected with blisters, the cuticle suffers, towards the end of the disease, a considerable desquamation.

Sometimes the tumour of the eye-lids ends in a suppura-

701. The inflammation coming upon the face does not produce any remission of the fever which had before prevailed; and sometimes the fever increases with the increasing and spreading inflammation.

702. The inflammation usually continues for eight or ten days; and, for the same time, the fever and symptoms at-

tending it also continue.

703. In the progress of the inflammation the delirium and coma attending it sometimes go on increasing, and the patient dies apoplectic, on the seventh, ninth, or eleventh day of the disease. In such cases, it has been commonly supposed that the disease is translated from the external to the internal parts. But I have not seen any instance in which it did not appear to me, that the affection of the brain was merely a communication of the external affection, as this continued increasing at the same time with the internal.

704. When the fatal event does not take place, the inflammation, after having affected a part, commonly the whole of the face, and perhaps the other external parts of the head, ceases. With the inflammation the fever also ceases; and, without any evident crisis, the patient returns to his ordinary state of health.

705. This disease is not commonly contagious; but as it may arise from an acrid matter externally applied, so it is possible, that the disease may sometimes be communicated from one person to another.

Persons who have once laboured under this disease are liable to returns of it.

706. The event of this disease may be foreseen from the state of the symptoms which denote more or less affection of the brain. If neither delirium nor coma come on, the disease is seldom attended with any danger; but when these symptoms appear early in the disease, and are in a considerable degree, the utmost danger is to be apprehended.

707. As this disease often arises in the part, at the same time with the coming on of the pyrexia; as I have known it, with all its symptoms, arise from an acrimony applied to the part; as it is commonly attended with a full, and frequently a hard pulse; as the blood drawn in this disease shows the same crust upon its surface that appears in the phlegmasiæ; and, lastly, as the swelling of the eye-lids, in this disease, frequently ends in a suppuration; so, from these considerations, it seems doubtful, if this disease be properly, in Nosology, separated from the Phlegmasiæ. At any rate, I take the disease I have described to be what physicians have named the Erysipelas Phlegmonodes, and that it partakes a great deal of the nature of the Phlegmasiæ.

708. Upon this conclusion, the Erysipelas of the face is to be cured very much in the same manner as phlegmonic inflammations, by blood-letting, cooling purgatives, and by employing every part of the antiphlogistic regimen; and our experience has confirmed the fitness of this method of cure.

709. The evacuations of blood-letting and purging are to be employed more or less according to the urgency of symptoms, particularly those of the pyrexia, and of those which mark an affection of the brain. As the pyrexia continues, and often increases with the inflammation of the face; so the evacuations mentioned may be employed at any time in the course of the disease.

710. In this, as in other diseases of the head, it is proper to put the patient, as often as he can easily bear it, into some-

what of an erect posture.

711. As in this disease there is always an external affection, and as in many instances there is no other; so various external applications to the part affected have been proposed; but almost all of them are of a doubtful effect. The narcotic, refrigerant, and astringent applications, are suspected of disposing to gangrene; spirituous applications seem to increase the inflammation; and all oily or watery applications

seem to occasion its spreading. The application that seems most safe, and which is now most commonly employed, is that of a dry mealy powder frequently sprinkled upon the inflamed parts.

712. An Erysipelas Phlegmonodes frequently appears on other parts of the body beside the face; and such other erysipelatous inflammations frequently end in suppuration. These cases are seldom dangerous. At coming on, they are sometimes attended with drowsiness, and even with some delirium; but this rarely happens; and these symptoms do not continue after the inflammation is formed. I have never seen an instance of the translation of this inflammation from the limbs to an internal part; and though these inflammations of the limbs be attended with pyrexia, they seldom require the same evacuations as the erysipelas of the face. At first they are to be treated by dry mealy applications only; and all humid applications, as fomentations, or poultices, are not to be applied, till, by the continuance of the disease, by the increase of swelling, or by a throbbing felt in the part, it appears that the disease is proceeding to suppuration.

713. We have hitherto considered erysipelas as in a great measure of a phlegmonic nature; and, agreeably to that opinion, we have proposed our method of cure. But it is probable, that an erysipelas is sometimes attended with, or is a symptom of a putrid fever; and in such cases, the evacuations proposed above may be improper, and the use of the Peruvian bark may be necessary; but I cannot be explicit upon this subject, as such putrid cases have not come under my observation.

CHAP. VII.

OF THE MILIARY FEVER.

G. XXXI. MILIARIA.—Synochus cum anxietate, frequenti suspirio, sudore olido, et punctionibus cutis. Incerto morbi die erumpunt papulæ rubræ, exiguæ, discretæ, per totam cutem, præter faciem, crebræ, quarum apices, post unum vel alterum diem, pustulas minimas, albas, brevi manentes, ostendunt.

714. This disease is said to have been unknown to the ancients, and that it appeared, for the first time, in Saxony, about the middle of the last century. It is said to have spread from thence into all the other parts of Europe; and, since the period mentioned, to have appeared in many countries in which it had never appeared before.

715. From the time of its having been first particularly observed, it has been described and treated of by many different writers, and by all of them, till very lately, has been

considered as a peculiar idiopathic disease.

It is said to have been constantly attended with peculiar symptoms. It comes on with a cold stage, which is often considerable. The hot stage, which succeeds, is attended with great anxiety, and frequent sighing. The heat of the body becomes great, and soon produces profuse sweating, preceded, however, by a sense of pricking, as of pin points, in the skin; and the sweat is of a peculiarly rank and disagreeable odour. The eruption appears sooner or later in different persons, but at no determined period of the disease. It seldom or never appears on the face; but discovers itself

first upon the neck and breast, and from thence often spreads over the whole body.

- 716. The eruption named Miliary is said to be of two kinds; the one named the Red, the other the White Miliary. The former, which in English is strictly named a Rash, is commonly allowed to be a symptomatic affection; and as the latter is the only one that has any pretensions to be considered as an idiopathic disease, it is this alone that I shall more particularly describe and treat of in the present chapter.
- 717. What then is called the White Miliary eruption, appears at first like the red, in very small red pimples, for the most part distinct, but sometimes clustered together. Their slight prominence is distinguished better by the finger than by the eye. Soon after the appearance of this eruption, and at least on the second day, a small vesicle appears upon the top of each pimple. At first the vesicle is whey coloured, but soon becomes white, and stands out like a little globule on the top of the pimple. In two or three days, these globules break, or are rubbed off, and are succeeded by small crusts, which soon after fall off in small scales. While one set of pimples takes this course, another set succeeds; so that the disease often continues upon the skin for many days together. Sometimes, when one crop of this eruption has disappeared, another, after some interval, is produced. And it has been further observed, that in some persons, there is such a tendency to this disease, that they have been affected with it several times in the course of their lives.
- 718. This disease is said to affect both sexes, and persons of all ages and constitutions; but it has been observed, at all times, to affect especially, and most frequently, lying-in women.
- 719. This disease is often accompanied with violent symptoms, and has frequently proved fatal. The symptoms attending it are, however, very various. They are, in one or

other instance, all the several symptoms attending febrile diseases; but I cannot find that any symptom, or concourse of symptoms, are steadily the same in different persons, so as to furnish any specific character to the disease. When the disease is violent, the most common symptoms are phrenitic, comatose, and convulsive affections, which are also symptoms of all fevers treated by a very warm regimen.

720. While there is such a variety of symptoms appearing in this disease, it is not to be expected that any one particular method of cure can be proposed; and, accordingly, we find, in different writers, different methods and remedies prescribed; frequent disputes about the most proper; and those received and practised by some, opposed and rejected by others.

721. I have thus given an account of what I have found delivered by authors who have considered the white miliary fever as an idiopathic disease; but now, after having often observed the disease, I must say, that I doubt much if it ever be such an idiopathic as has been supposed, and I suspect that there is much fallacy in what has been written on the subject.

722. It seems to me very improbable, that this should have been really a new disease, when it was first considered as such. There appear to me very clear traces of it in authors who wrote long before that period; and, though there were not, we know that the descriptions of the ancients were inaccurate and imperfect, particularly with respect to cutaneous affections; whilst we know also very well, that those affections which usually appeared as symptomatic only, were commonly neglected, or confounded together, under a gene-

723. The antecedent symptoms of anxiety, sighing, and pricking of the skin, which have been spoken of as peculiar to this disease, are, however, common to many others, and

ral appellation.

perhaps to all those in which sweatings are forced out by a warm regimen.

Of the symptoms said to be concomitant of this eruption, there are none which can be said to be constant and peculiar, but that of sweating. This, indeed, always precedes and accompanies the eruption, and, while the miliary eruption attends many different diseases, it never, however, appears in any of these, but after sweating; and, in persons labouring under these diseases, it does not appear, if sweating be avoided. It is, therefore, probable, that the eruption is the effect of sweating; and that it is the produce of a matter, not before prevailing in the mass of blood, but generated, under particular circumstances, in the skin itself. That it depends upon particular circumstances of the skin, appears further from hence, that the eruption seldom or never appears upon the face, although it affects the whole of the body besides; that it comes upon those places especially which are more closely covered: and that it can be brought out upon particular parts by external applications.

724. It is to be observed, that this eruptive disease differs from the other exanthemata in many circumstances; in its not being contagious, and, therefore, never epidemic; that the eruption appears at no determined period of the disease; that the eruption has no determined duration; that successive eruptions frequently appear in the course of the same fever; and that such eruptions frequently recur in the course of the same person's life.

All these circumstances render it extremely probable, that, in the miliary fever, the morbific matter is not a subsisting contagion communicated to the blood, and thence, in consequence of fever and assimilation, thrown out upon the surface of the body; but a matter occasionally produced in the skin itself, by sweating.

725. This conclusion is further rendered probable from hence, that, while the miliary eruption has no peculiar

symptoms, or concourse of symptoms, belonging to it; yet, upon occasion, it accompanies almost all febrile diseases, whether inflammatory or putrid, if these happen to be attended with sweating; and from thence it may be presumed, that the miliary eruption is a symptomatic affection only, produced in the manner we have said.

726. But, as this symptomatic affection does not always accompany every instance of sweating, it may be proper to inquire, what are the circumstances which especially determine this eruption to appear? To this, however, I can give no full and proper answer. I cannot say that there is any one circumstance which, in all cases, gives occasion to this eruption; nor can I say what different causes may, in different cases, give occasion to it. There is only one observation I can offer to the purpose of this inquiry; and it is, that, of the persons sweating under febrile diseases, those are especially liable to the miliary eruption, who have been previously weakened by large evacuations, particularly of blood. This will explain why it happens to lying-in women more frequently than to any other persons; and to confirm this explanation, I have remarked, that the eruption happened to women not in child-bed, but who had been much subjected to a frequent and copious menstruation, and to an almost constant fluor albus. I have also had occasion to observe it happen to men in fevers, after wounds from which they had suffered a great loss of blood.

Further, that this eruption is produced by a certain state of debility, will appear probable, from its often occurring in fevers of the putrid kind, which are always attended with great debility. It is true, that it also sometimes attends inflammatory diseases, when it cannot be accounted for in the same manner; but I believe it will be found to attend especially those inflammatory diseases, in which the sweats have been long protracted, or frequently repeated, and which

have thereby produced a debility, and perhaps a debilitating putrid diathesis.

vays a symptomatic and factitious affection, that I am persuaded it may be in most cases prevented, merely by avoiding sweats. Spontaneous sweatings, in the beginning of diseases, are very rarely critical; all sweatings, not evidently critical, should be prevented; and the promoting them, by increasing external heat, is commonly very pernicious. Even critical sweats should hardly be encouraged by such means. If, therefore, spontaneous sweats arise, they are to be checked by the coolness of the chamber; by the lightness and looseness of the bed-clothes; by the persons laying out their hands and arms; and by their taking cold drink: and by these precautions, I think I have frequently prevented miliary eruptions, which were otherwise likely to have appeared, particularly in lying-in women.

728. But it may happen, when these precautions have been neglected, or, from other circumstances, that a miliary eruption does actually appear; and the question will then be put, How the case is to be treated? It is a question of consequence; because I believe that the matter here generated is often of a virulent kind; it is frequently the offspring of putrescency; and, when treated by increasing the external heat of the body, it seems to acquire a virulence which produces those symptoms mentioned in 719, and proves certainly fatal.

It has been an unhappy opinion with most physicians, that eruptive diseases were ready to be hurt by cold; and that it was therefore necessary to cover up the body very closely, so as thereby to increase the external heat. We now know that this is a mistaken opinion; that increasing the external heat of the body is very generally mischievous; and that several eruptions not only admit, but require the application of cold air. We are now persuaded, that the practice which

formerly prevailed, in the case of miliary eruptions, of covering up the body close, and both by external means, and internal remedies, encouraging the sweatings which accompany this eruption, was highly pernicious, and commonly fatal. I am therefore of opinion, even when a miliary eruption has appeared, that in all cases where the sweating is not manifestly critical, we should employ all the several means of stopping it that are mentioned above; and, I have sometimes had occasion to observe, that even the admission of cool air was safe and useful.

729. This is in general the treatment of miliary eruptions; but, at the same time, the remedies suited to the primary disease are to be employed: and therefore, when the eruption happens to accompany inflammatory affections, and when the fulness and hardness of the pulse, or other symptoms, show an inflammatory state present, the case is to be treated by blood-letting, purging, and other antiphlogistic remedies.

Upon the other hand, when the miliary eruption attends diseases in which debility and putrescency prevail, it will be proper to avoid all evacuations, and employ tonic and antiseptic remedies, particularly the Peruvian bark, cold drink, and cold air.

I shall conclude this subject with mentioning, that the venerable octogenarian practitioner, De Fischer, when treating of this subject, in laying down the indications of cure, has given this as one of them: "Excretionis periphericæ" non primariam habere rationem."

CHAP. VIII.

OF THE REMAINING EXANTHEMATA,

URTICARIA, PEMPHIGUS, AND APHTHA.

- G. XXXII. URTICARIA.—Febris amphimerina. Die secundo rubores maculosi, urticarum puncturas referentes, interdiu fere evanescentes, vespere cum febre redeuntes, et post paucos dies in squamulas minutissimas penitus abeuntes.
- G. XXXIII. Pemphigus.—Typhus contagiosa. Primo, secundo aut tertio morbi die, in variis partibus vesiculæ, avellanæ magnitudine, per plures dies manentes, tandem ichorem tenuem effunden-
- G. XXXIV. APHTHA.—Synochus. Lingua tumidiuscula; linguæ et faucium color purpurascens; escharæ in faucibus et ad linguæ margines primum comparentes, os internum totum demum occupantes, albidæ, aliquando discretæ, sæpe coalescentes, abrasæ cito renascentes, et incerto tempore manentes.
- 730. THE Nettle Rash is a name applied to two different diseases. The one is the chronic eruption described by Dr Heberden in the Medical Transactions, vol. i. art. xvii., which, as not being a febrile disorder, does not belong to this place. The other is the Urticaria of our Synopsis, which, as taken into every system of Nosology as one of the Exanthemata Febrilia, is properly to be treated of here.
- 731. I have never observed this disease as contagious and epidemic; and the few sporadic cases of it which have occurred to me, have seldom taken the regular course described

by authors. At the same time, as the accounts of different authors are not very uniform, and hardly consistent, I cannot enter further into the consideration of this subject; and I hope it is not very necessary, as on all hands it is agreed to be a mild disease, and such as seldom requires the use of remedies. It is generally sufficient to observe an antiphlogistic regimen, and to keep the patient in a temperature that is neither hot nor cold.

732. The Pemphigus, or Vesicular Fever, is a rare and uncommon disease, and very few instances of it are recorded in the writings of physicians. As I have never had occasion to see it, it would be improper for me to treat of it, and I do not choose to repeat after others, while the disease has yet been little observed, and its character does not seem to be exactly ascertained. Vid. Acta Helvetica, vol. ii. p. 620. Synops. Nosolog. vol. ii. p. 149.

733. The Aphtha, or Thrush, is a disease better known; and, as it commonly appears in infants, it is so well understood as not to need of our treating of it here. As an idiopathic disease, affecting adults, I have not seen it in this country: but it seems to be more frequent in Holland; and therefore, for the study of it, I refer to Dr Boerhaave, and his commentator, Van Swieten, whose works are in every body's hands.

734. The Petechia has been, by all our Nosologists, enumerated amongst the exanthemata; but as, according to the opinion of most physicians, it is very justly held to be always a symptomatic affection only, I cannot give it a place here.

BOOK IV.

OF HÆMORRHAGIES.

ORD. IV. HÆMORRHAGLÆ.

Pyrexia cum profusione sanguinis absque vi externá; sanguis missus ut in phlegmasiis apparet.

CHAP. I.

OF HÆMORRHAGY IN GENERAL.

735. In establishing a class or order of diseases, under the title of *Hæmorrhagies*, Nosologists have employed the single circumstance of an effusion of red blood, as the character of such a class or order. By this means, they have associated diseases which in their nature are very different; but in every methodical distribution, such arbitrary and unnatural associations should be avoided as much as possible. Further, by that management Nosologists have suppressed or lost sight of an established and well-founded distinction of hæmorrhagies into Active and Passive.

therefore here, under the title of hæmorrhagies, comprehend those only which have commonly been called Active, that is, those attended with some degree of pyrexia; which seem always to depend upon an increased impetus of the blood in the vessels pouring it out, and which chiefly arise from an internal cause. In this I follow Dr Hoffman, who joins the active hæmorrhagies with the febrile diseases, and have accordingly established these hæmorrhagies as an order in the

class of Pyrexiæ. From this order I exclude all those effusions of red blood that are owing entirely to external violence; and all those which, though arising from internal causes, are however not attended with pyrexia, and which seem to be owing to a putrid fluidity of the blood, and to the weakness or to the erosion of the vessels, rather than to any increased impetus of the blood in them.

737. Before proceeding to treat of those proper hæmorrhagies which form an order in our Nosology, I shall treat of active hæmorrhagy in general; and indeed the several genera and species to be treated of particularly afterwards have so many circumstances in common with one another, that the general considerations to be now offered will prove both proper and useful.

Sect. I .- Of the Phenomena of Hamorrhagy.

738. The phenomena of hæmorrhagy are generally the following.

Hæmorrhagies happen especially in plethoric habits, and to persons of a sanguine temperament. They appear most commonly in the spring or in the beginning of summer.

For some time, longer or shorter in different cases, before the blood flows, there are some symptoms of fulness and tension about the parts from whence the blood is to issue. In such parts as fall under our view, there are some redness, swelling, and sense of heat or of itching; and in the internal parts, from which blood is to flow, there is a sense of weight and heat; and in both cases, various pains are often felt in the neighbouring parts.

739. When these symptoms have subsisted for some time, some degree of a cold stage of pyrexia comes on, and a hot stage is formed; during which the blood flows of a florid colour, in a greater or lesser quantity, and continues

to flow for a longer or shorter time; but commonly, after some time, the effusion spontaneously ceases, and together with it the pyrexia also.

740. During the hot stage which precedes an hæmorrhagy, the pulse is frequent, quick, full, and often hard; but, as the blood flows, the pulse becomes softer and less frequent.

741. In hæmorrhagies, blood drawn from a vein does, upon its concreting, commonly show the gluten separated, or a crust formed, as in the cases of Phlegmasiæ.

742. Hæmorrhagies, from internal causes, having once happened, are apt, after a certain interval, to return; in some

cases very often, and frequently at stated periods.

743. These are, in general, the phenomena of hæmorrhagy; and if in some cases all of them be not exquisitely marked, or if perhaps some of them do not at all appear, it imports only, that in different cases the system is more or less generally affected; and that in some cases there are purely topical hæmorrhagies, as there are purely topical inflammations.

SECT. II .- Of the Proximate Cause of Hamorrhagy.

744. The pathology of hæmorrhagy seems to be sufficiently obvious. Some inequality in the distribution of the blood occasions a congestion in particular parts of the sanguiferous system; that is, a greater quantity of blood is poured into certain vessels than their natural capacity is suited to receive. These vessels become thereby preternaturally distended: and this distention, proving a stimulus to them, excites their action to a greater degree than usual, which, pushing the blood with unusual force into the extremities of these vessels, opens them by anastomosis, or rupture; and if these extremities be loosely situated on external

surfaces, or on the internal surfaces of certain cavities that open outwardly, a quantity of blood flows out of the body.

745. This reasoning will, in some measure, explain the production of hæmorrhagy. But it appears to me, that in most cases there are some other circumstances that concur to produce it; for it is probable, that in consequence of congestion, a sense of resistance arises, and excites the action of the Vis Medicatrix Naturæ; the exertions of which are usually made by the formation of a cold stage of pyrexia, inducing a more vigorous action of the vessels; and the concurrence of this exertion more effectually opens the extremities, and occasions the flowing out of the blood.

graphs, seems to explain the whole phenomena of hæmor-rhagy, except the circumstance of its frequent recurrence, which I apprehend may be explained in the following manner: The congestion, and consequent irritation, being taken off by the flowing of the blood; this, therefore, soon after, spontaneously ceases: but at the same time the internal causes which had before produced the unequal distribution of the blood, commonly remain, and must now operate the more readily, as the overstretched and relaxed vessels of the part will more easily admit of a congestion of blood in them, and consequently produce the same series of phenomena as before.

747. This may sufficiently explain the ordinary return of hæmorrhagy: but there is still another circumstance, which, as commonly concurring, is to be taken notice of; and that is, the general plethoric state of the system, which renders every cause of unequal distribution of more considerable effect. Though hæmorrhagy may often depend upon the state of the vessels of a particular part being favourable to a congestion's being formed in them, yet, in order to that state's producing its effect, it is necessary that the whole system should be at least in its natural plethoric condition; and if

this should be in any degree increased beyond what is natural, it will still more certainly determine the effects of topical conformation to take place. The return of hæmorrhagy, therefore, will be more certainly occasioned, if the system becomes preternaturally plethoric; but hæmorrhagy has always a tendency to increase the plethoric state of the system, and consequently to occasion its own return.

748. To show that hæmorrhagy does contribute to produce or increase the plethoric state of the system, it is only necessary to observe, that the quantity of serous fluids being given, the state of the excretions depends upon a certain balance between the force of the larger arteries propelling the blood, and the resistance of the excretories: but the force of the arteries depends upon their fulness and distention, chiefly given to them by the quantity of red globules and gluten, which are, for the greatest part, confined to the red arteries; and therefore the spoliation made by an hæmorrhagy, being chiefly of red globules and gluten, the effusion of blood must leave the red arteries more empty and weak. In consequence of the weaker action of the red arteries, the excretions are in proportion diminished: and therefore the ingesta continuing the same, more fluids will be accumulated in the larger vessels. It is by this means that the loss of blood by hæmorrhagies, whether artificial or spontaneous, if within certain bounds, is commonly so soon recovered: but as the diminution of the excretions, from a less quantity of fluid being impelled into the excretories, gives occasion to these vessels to fall into a contracted state; so, if this shall continue long, these vessels will become more rigid, and will not yield to the same impelling force as before. Although the arteries, therefore, by new blood collected in them, shall have recovered their former fulness, tension, and force, yet this force will not be in balance with the resistance of the more rigid excretories, so as to restore the former state of excretion; and consequently, a further accumulation will

take place in the arteries, and an increase of their plethoric state be thereby induced. In this manner, we perceive more clearly, that hæmorrhagy, as producing a more plethoric state of the system, has a tendency to occasion its own recurrence with greater violence; and as the renewal and further accumulation of blood require a determinate time, so, in the several repetitions of hæmorrhagy, that time will be nearly the same; and therefore the returns of hæmorrhagy will be commonly at stated periods, as has been observed

frequently to happen.

749. I have thus explained the nature of hæmorrhagy in general, as depending upon some inequality in the distribution of the blood, occasioning a congestion of it in particular parts of the sanguiferous system. It is indeed probable, that in most persons the several parts of the sanguiferous system are in balance with one another; and that the density, and consequently the resistance in the several vessels, is in proportion to the quantity of blood which each should receive; from whence it frequently happens, that no inequality in the distribution of the blood takes place in the course of a long life. If, however, we consider that the sanguiferous system is constantly in a plethoric state, that is, that the vessels are constantly distended beyond that size which they would be of, if free from any distending force, we shall be satisfied that this state may be readily changed. For as, on the one hand, the vessels are elastic, so as to be under a constant tendency to contract upon the withdrawing of any part of the distending force; and, on the other hand, are not so rigid, but that, by an increase of the impetus of the blood in them, they may be more than ordinarily distended; so we can easily understand how, in most persons, causes of an increased contraction or distention may arise in one part or other of the system, or that an unequal distribution may take place; and how, in an exquisitely distended or plethoric system, a small inequality in the distribution of the

blood may form those congestions which give occasion to hæmorrhagy.

750. In this manner I endeavour to explain how hæmorrhagy may be occasioned at any period of life, or in any part of the body: but hæmorrhagies happen in certain parts more frequently than in others, and at certain periods of life more readily than in others; and therefore, in delivering the general doctrine of hæmorrhagy, it may be required that I should explain those circumstances which produce the specialties mentioned; and I shall now attempt it.

751. The human body, from being of a small bulk at its first formation, grows afterwards to a considerable size. This increase of bulk consists, in a great measure, in the increase of the quantity of fluids, and a proportional enlargement of the containing vessels. But, at the same time, the quantity of solid matter is also gradually increased; and in whatever manner we may suppose this to be done, it is probable that the progress in the whole of the growth of animal bodies depends upon the extension of the arterial system; and such is the constitution of the sanguiferous system, that the motion of the blood in the arteries has a constant tendency to extend them in every dimension.

752. As the state of the animal-solid is, at the first formation of the body, very lax and yielding; so the extension of the system proceeds at first very fast; but, as the extension gives occasion to the apposition of more matter to the solid parts, these are, in proportion to their extension, constantly acquiring a greater density, and therefore giving more resistance to their further extension and growth. Accordingly, we observe, that as the growth of the body advances, its increase, in any given time, becomes proportionally less and less, till at length it ceases altogether.

753. This is the general idea of the growth of the human body, till it attain the utmost bulk which it is capable of acquiring; but it is to be remarked, that this growth does not

proceed equally in every part of the body, it being requisite for the economy of the system, that certain parts should be first evolved, and should also acquire their full bulk sooner than others. This appears particularly with respect to the head, the parts of which appear to be first evolved, and soonest to acquire their full size.

754. To favour this unequal growth, it is presumed, that the dimensions or the laxity of the vessels of the head, or that the direction of the force of the blood, are adapted to the purpose; and from what has been said in 752, it will also certainly follow, that as the vessels of the head grow fastest, and soonest acquire their full size, so they will soonest also acquire that density which will prevent their further extension. While, however, the force of the heart, and the quantity of the fluids, with respect to the whole system, remain the same, the distending and extending powers will be directed to such parts as have not yet acquired the same density and dimensions as those first evolved; and thus the distending and extending powers will proceed to operate till every part of the system, in respect of density and resistance, shall have been brought to be in balance with every other, and till the whole be in balance with the force of the heart, so that there can be no further growth in any particular part, unless some preternatural circumstance shall happen to arise.

755. In this process of the growth of the body, as it seems in general to depend upon a certain balance between the force of the heart, or distending power, and the resistance of the solids; so it will appear, that while the solids remain very lax and yielding, some occasional increase of the distending power may arise without producing any very perceptible disorder in the system. But it will also appear, that in proportion as the distending power and resistance of the solids come to be more nearly in exact balance with one another, so any increase of the distending power will more

readily produce a rupture of vessels, which do not easily yield to extension.

756. From all this, it must follow, that the effects of any unusually plethoric state of the system will be different according as this shall occur at different periods of the growth of the body. Accordingly, it is evident, that if the plethoric state arises while the head is yet growing, and while the determination of the blood is still more to the head than to the other parts, the increased quantity of the blood will be especially determined to the head; and as there also, at the same time, the balance between the distending and extending powers is most nearly adjusted, so the determination of the blood will most readily produce in that part a rupture of the vessels, or an hæmorrhagy. Hence it is, that hæmorrhagies of the nose so frequently happen in young persons; and in these more readily, as they approach nearer to their acmé, or full growth; or it may be said, perhaps more properly, as they approach nearer to the age of puberty, when perhaps in both sexes, but especially in the female, a new determination arises in the system.

757. The determination of a greater quantity of blood to the vessels of the head, might be supposed to occasion a rupture of vessels in other parts of the head, as well as in the nose: but such a rupture does not commonly happen; because in the nose, there is, for the purpose of sense, a considerable net-work of blood-vessels expanded on the external surface of the nostrils, and covered only with thin and weak teguments. From this circumstance it is, that upon any increased impetus of the blood in the vessels of the head, those of the nose are most easily broken; and the effusion from the nose taking place, it not only relieves the other extremities of the external carotid, to which the arteries of the nose chiefly belong, but relieves also, in a great measure, the system of the internal carotid. For, from the internal carotid, certain branches are sent to the nose, or

spread out on its internal surface, and probably inosculated with the extremities of the external carotid; so that, which-soever of the extremities are broken, the vis derivationis of Haller will take place; the effusion will relieve the whole sanguiferous system of the head; and the same effusion will also commonly prevent an hæmorrhagy happening at the same time in any other part of the body.

758. From these principles, it will appear why hæmorrhagies of the nose, so frequent before the period of puberty, or of the acmé, seldom happen after these periods; and
I must observe further, that although they should occur,
they would not afford any objection to my doctrine, as such
hæmorrhagies might be imputed to a peculiar laxity of the
vessels of the nose, and perhaps to a habit acquired with respect to these vessels, while the balance of the system might
be otherwise duly adjusted.

759. When the process of the growth of the body goes on regularly, and the balance of the system is properly adjusted to the gradual growth of the whole, as well as to the successive growth of the several parts, even a plethoric state does not produce any hæmorrhagy, or at least any after that of the nose: but if, while the plethoric state continues, any inequality shall also subsist in any of the parts of the system, congestions, hæmorrhagic or inflammatory, may be still readily formed.

760. In general, it may be observed, that when the several parts of the system of the aorta have attained their full growth, and are duly balanced with one another, if then any considerable degree of plethora remain or arise, the nicety of the balance will be between the systems of the aorta and pulmonary artery, or between the vessels of the lungs and those of all the rest of the body. And although the lesser capacity of the vessels of the lungs is commonly compensated by the greater velocity of the blood in them; yet, if this velocity be not always adjusted to the necessary compensa-

tion, it is probable that a plethoric state of the whole body will always be especially felt in the lungs, and therefore, that an hæmorrhagy, as the effect of a general plethora, may be frequently occasioned in the lungs, even though there be no fault in their conformation.

- 761. In some cases, perhaps, an hæmorrhagy from the lungs, or an hæmoptysis, does arise from the general plethoric state of the body; but an hæmoptysis more frequently does, and may be expected to happen, from a faulty proportion between the capacity of the lungs and that of the rest of the body.
- 762. When such a disproportion takes place, it will be evident, that an hæmoptysis will especially happen about the time that the body is approaching to its acmé; that is, when the system of the aorta has arrived at its utmost extension and resistance, and when therefore the plethoric state of the whole must especially affect the lungs.
- 763. Accordingly, it has been constantly observed, that the hæmoptysis especially occurs about the time of the body's arriving at its acmé; but I must remark also, that the hæmorrhagy may occur sooner or later, according as the balance between the vessels of the lungs and those of the system of the aorta happens to be more or less exactly adjusted to one another; and it may therefore often occur much later than the period mentioned, when that balance, though not quite even, is however not so ill adjusted, but that some other concurring causes are necessary to give it effect.
- 764. It was anciently remarked by Hippocrates, and has been confirmed by modern observation, that the hæmoptysis generally occurs in persons between the age of fifteen and that of five-and-thirty; that it may happen at any time between these two periods; but that it seldom happens before the former, or after the latter; and it may be proper here to inquire into the reason of these two limitations.

765. With respect to the first, the reason of it has been already explained in 762. and 763.

With respect to the second limitation, I expect that the reason of it will be understood from the following considerations:

It has been already observed, that the extension and growth of the body require the plethoric state of the arterial system; and nature has provided for this, partly by the constitution of the blood being such, that a great portion of it is unfit to pass into the exhalants and excretories; partly by giving a certain density and resistance to the several exhalants and excretories through which the fluids might pass out of the red arteries; and partly, but especially, by a resistance in the veins to the free passage of the blood into them from the arteries.

766. With respect to this last and chief circumstance, it appears from the experiments of Sir Clifton Wintringham in his Experimental Inquiry, that the proportional density of the coats of the veins to that of the coats of the arteries, is greater in young than in old animals: From which it may be presumed, that the resistance to the passage of the blood from the arteries into the veins, is greater in young animals than in old; and, while this resistance continues, the plethoric state of the arteries must be constantly continued and supported. As, however, the density of the coats of the vessels, consisting chiefly of a cellular texture, is increased by pressure; so, in proportion as the coats of the arteries are more exposed to pressure by distention than those of the veins, the former, in the progress of the growth of the body, must increase much more in density than the latter; and therefore, the coats of the arteries, in respect of density and resistance, must come in time, not only to be in balance with those of the veins, but to prevail over them; a fact which is sufficiently proved by the experience of the abovementioned ingenious author.

By these means, the proportional quantities of blood in the arteries and veins must change in the course of life. In younger animals, the quantity of blood in the arteries must be proportionally greater than in old ones; but, by the increasing density of the arteries, the quantity of blood in them must be continually diminishing, and that in the veins be proportionally increasing, so as at length to be in a proportionally greater quantity than that in the arteries. When this change happens in the proportional quantities of the blood in the arteries and veins, it must be evident, that the plethoric state of the arteries will be, in a great measure, taken off; and, therefore, that the arterial hæmorrhagy is no longer likely to happen; but that, if a general plethoric state afterwards take place in the system, it must especially appear in the veins.

767. The change I have mentioned to happen in the state of the arterial and venous systems, is properly supposed to take place in the human body about the age of thirty-five, when it is manifest that the vigour of the body, which depends so much upon the fulness and tension of the arterial system, no longer increases; and therefore it is, that the same age is the period, after which the arterial hæmorrhagy, hæmoptysis, hardly ever appears. It is true, there are instances of the hæmoptysis happening at a later period; but it is for the reasons given (758.), which show, that an hæmorrhagy may happen at any period of life, from accidental causes forming congestions, independent of the state of the balance of the system at that particular period.

768. I have said (766.), that if, after the age of thirty-five, a general and preternatural plethoric state occur, it must especially appear in the venous system; and I must now observe, that this venous plethora may also give occasion to hæmorrhagy.

769. If a plethoric state of the venous system take place, it is to be presumed, that it will especially, and in the first

place, affect the system of the vena portarum, in which the motion of the venous blood is more slow than elsewhere; in which the motion of the blood is little assisted by external compression; and in which, from the want of valves in the veins that form the vena portarum, the motion of the blood is little assisted by the compression that is applied; while, from the same want of valves in those veins, the blood is more ready to regurgitate in them. Whether any regurgitation of the blood can produce an action in the veins, and which, inverted or directed towards their extremities, can force these, and occasion hæmorrhagy, may perhaps be disputed; but it appears to me, that an hæmorrhagy, produced by a plethoric state of the veins, may be explained in another and more probable manner. If the blood be accumulated in the veins, from any interruption of its proper course, that accumulation must resist the free passage of the blood from the arteries into the veins. This again must produce some congestion in the extremities of the red arteries, and, therefore, some increased action in them, which must be determined with more than usual force, both upon the extremities of the arteries, and upon the exhalants proceeding from them; and this force may occasion an effusion of blood, either by anastomosis or rupture.

770. In this manner I apprehend the hæmorrhoidal flux is to be explained, so far as it depends upon the state of the whole system. It appears most commonly to proceed from the extremities of the hæmorrhoidal vessels, which being the most dependent and distant branches of those veins that form the vena portarum, are therefore the most readily affected by every accumulation of blood in that system of veins, and consequently by any general plethora in the ve-

nous system.

771. It is here to be observed, that I have spoken of this hæmorrhagy as proceeding from the hæmorrhoidal vessels only, as indeed it most commonly does; but it will be readily understood, that the same accumulation and resistance to the venous blood may, from various causes, affect many of the extremities of the vena portarum, which lie very superficially upon the internal surface of the alimentary canal, and give occasion to what has been called the *Morbus Niger* or *Melæna*.

772. Another part, in which an unusually plethoric state of the veins may have particular effects, and occasion hæmorrhagy, is the head. In this, the venous system is of a peculiar conformation, and such as seems intended by nature to give there a slower motion to the venous blood. therefore, the plethoric state of the venous system in general, which seems to increase as life advances, should at length increase to a great degree, it may very readily affect the venous vessels of the head, and produce there such a resistance to the arterial blood, as to determine this to be poured out from the nose, or into the cavity of the cranium. The special effect of the latter effusion will be, to produce the disease termed Apoplexy; and which, therefore, is properly named by Dr Hoffman, Hamorrhagia Cerebri; and the explanation of its cause, which I have now given, explains well why it happens especially to men of large heads and short necks, and to men in the decline of life, when the powers promoting the motion of the blood are much weakened.

773. I have thus attempted to give the history of the plethoric and hæmorrhagic states of the human body, as they occur at the different periods of life; and hope I have thereby explained, not only the nature of hæmorrhagy in general, but also of the particular hæmorrhagies which most commonly appear, and as they occur successively at the different periods of life.

Sect. III.—Of the Remote Causes of Hamorrhagy.

774. In the explanation hitherto given, I have especially considered the predisposition to hæmorrhagy; but it is proper also, and even necessary, to take notice of the occasional causes, which not only concur with the predisponent, in exciting hæmorrhagy, but may also sometimes be the sole causes of it.

775. These occasional causes are,

1. External heat, which, by rarifying the blood, produces or increases the plethoric state of the body; and the same heat, as giving a stimulus to the whole system, must urge any particular determinations before established still further, or may urge to excess any inequality, otherwise innocent; so that, in either way, external heat may immediately excite hæmorrhagies, to which there was a predisposition, or may form congestions where there were none before, and thereby occasion hæmorrhagy.

2. A considerable and sudden diminution of the weight of the atmosphere, which seems to occasion the same effects as

heat, by producing also an expansion of the blood.

3. Whatever increases the force of the circulation, and thereby the velocity of the blood, may operate in the same manner as heat, in urging not only previous determinations with violence, but also in urging to excess inequalities, otherwise innocent. All violent exercise, therefore, and especially all violent efforts, which, not only by a larger and longer inspiration, but also by the simultaneous action of many muscles interrupting the free motion of the blood, impel it with unusual force into the extreme vessels more generally, and, according to the different postures of the body, and mode of the effort, into certain vessels more particularly.

Among the causes increasing the force of the circulation, anger, and other violent active passions, are to be rec-

koned.

- 4. The violent exercise of particular parts of the body. If these are already affected with congestions, or liable to them, such exercise may be considered as a stimulus applied to the vessels of that particular part. Thus, any violent exercise of respiration may excite hæmoptysis, or occasion its return.
- 5. The postures of the body increasing determinations, or ligatures occasioning accumulations of the blood in particular parts of the body.
- 6. A determination into certain vessels rendered habitual by the frequent repetition of hæmorrhagy from them.
- 7. Cold, externally applied, as changing the distribution of the blood, and determining it in greater quantity into the internal parts.

Sect. IV.—Of the Cure of Hamorrhagy.

776. Having thus considered the proximate and remote causes of hæmorrhagy in general, our next business is to treat of the cure of the disease in the same manner.

In entering upon this subject, the first question which presents itself, is, Whether the cure of hæmorrhagies ought to be attempted by art, or if they should be left to the conduct of nature?

777. The latter opinion was the favourite doctrine of the celebrated Dr Stahl, and his followers. They maintained, that the human body is much disposed to a plethoric state, and, consequently, to many disorders, which nature endeavours to obviate and relieve, by exciting hamorrhagy; that this, therefore, is often necessary to the balance and health of the system; that it is accordingly to be generally encouraged, sometimes solicited, and is not to be suppressed, unless when it goes to great excess, or happens in parts in which it may be dangerous.

778. Much of this doctrine may be admitted. The hu-

man body, upon many occasions, becomes preternaturally plethoric; and the dangerous consequences which might from thence be apprehended, seem to be obviated by an hæmorrhagy taking place; and further, the necessity of hæmorrhagy often appears from hence, that the suppression of it seems to occasion many disorders.

All this seems to be just; but, in the conclusion drawn from it, there is a fallacy.

779. It appears to me certain, that hæmorrhagy, either upon its first attack, or upon its after-recurrence, is never necessary to the health of the body, excepting upon the supposition, that the plethoric state which seems to require the evacuation cannot be otherwise prevented or removed; and as I imagine it possible, by other means, to prevent or remove a plethoric state, so I do not think that hæmorrhagy is, in all cases, necessary. In general, I am of opinion that hæmorrhagy is to be avoided.

1. Because it does not always happen in parts where it is

2. Because often, while it does relieve a plethoric state, it may, at the same time, induce a very dangerous disease.

3. Because it may often go to excess, and either endanger life, or induce a dangerous infirmity.

And, lastly, Because it has a tendency to increase the plethoric state it was meant to relieve; to occasion its own recurrence (721.); and thereby to induce a habit, which, if left to the precarious and unequal operation of nature, may, from the frequent errors of this, be attended with much danger.

780. It is further to be considered, that hæmorrhagies do not always arise from the necessities of the system, but often proceed from incidental causes. It appears to me, that all hæmorrhagies of the latter kind may be immediately suppressed, and the repetition of them, as it induces a plethora, and a habit not otherwise necessary, may be prevented with advantage.

781. Upon the whole of this subject, I conclude, that every preternatural hæmorrhagy, or, in other words, every one except that of the menses in females, is to be avoided, and especially the returns of it prevented; and I therefore now proceed to mention, how hæmorrhagy, and its recurrences, may and should be prevented.

782. From the principles delivered above, it will immediately appear, that the prevention either of the first attacks, or of the returns of hæmorrhagy, will chiefly, and in the first place, depend upon the preventing or removing any considerable degree of a plethoric state which may happen to prevail in the body. It is true, that where the hæmorrhagy depends upon the particular conformation of certain parts, rather than upon the general plethoric state of the whole; the measures for removing or preventing the latter may not always be sufficient for preventing hæmorrhagy; but at the same time it must be evident, that determinations, in consequence of the conformation of particular parts, will always be urged more or less, in proportion to the greater or less degree of the plethoric state of the whole system; and therefore, that even in the cases depending upon particular conformation, the preventing or removing an unusually plethoric state will always be a chief means of preventing hæmorrha-It is further to be attended to, that there may be several inequalities in the balance of the system, which may have little or no effect unless when the system becomes preternaturally plethoric; and, therefore, that in all cases the preventing or removing of the plethoric state of the system will be a chief means of preventing the first attacks, or the returns of hæmorrhagy. It now therefore remains to explain, how the plethoric state of the system is to be prevented or removed.

783. The fluids of the human body are in continual waste by the excretions, but are commonly replaced by the aliments taken in; and if the quantity of aliments in any mea-

sure exceed that of the excretions, an increase of the quantity of the fluids of the body, or, in other words, a plethoric state must necessarily arise. This, to a certain degree, is requisite for the growth of the body: but even then, if the proportion of the aliments to the excretions be greater than is suited to the growth of the body, and more certainly still, if, after the growth is completed, when an equality between the *ingesta* and the *excreta* should be established, the disproportion still continue, a preternaturally plethoric state must arise. In both cases, it is evident, that the plethora must be prevented or corrected by adjusting the ingesta and excreta to each other; which generally may be done, either by diminishing the ingesta, or by increasing the excreta. The former may be effected by the management of diet, the latter by the management of exercise.

784. The ingesta may be diminished, either by giving aliment in less quantity than usual, or by giving aliments of a less nutritious quality; that is, aliments of a substance, which, under the same bulk and weight, contain less of a matter capable of being converted into animal fluids, and more of a matter ready to pass off by the excretions, and consequently less of a matter to be retained and accumulated in the vessels.

The choice of aliments suited to these purposes must be left to be directed by the doctrines of the Materia Medica.

805. The increasing of the excreta, and thereby diminishing the plethoric state of the system, is to be obtained by increasing the exercise of the body; and generally for adjusting the balance between the ingesta and excreta, and thereby obviating the plethoric state, it is necessary that exercise, in a due measure, be very constantly employed.

786. The observing abstinence, and the employment of exercise for obviating or removing the plethoric state of the body, were formerly considered pretty fully, when treating of the gout (548, to 552); so that the less is necessary to be

said here; and it is now only requisite to observe, that the same doubts, as in cases of the gout, do not occur here with regard to the safety of those measures, which, in a plethoric state of the body disposing to hæmorrhagy, are always admissible and proper. Here, however, it is to be observed, that some choice in the mode of exercise is necessary, and that it should be different according to the particular determinations which may happen to prevail in the system. In general, in the case of plethora disposing to hæmorrhagy, bodily exercise will always be hazardous, and gestation more commonly safe.

- 787. Artificial evacuations may be employed to diminish the plethoric state of the body; and when at any time it has become considerable, and immediately threatens a disease, these evacuations should be made to the quantity that the symptoms seem to require. But it is constantly to be attended to, that blood-lettings are improperly employed to prevent a plethora, as they have a tendency to increase it (721.); and as they require to be often repeated, and are thereby apt to induce a habit which may be attended with much danger.
- 788. While a plethora, and thereby the predisposition to hæmorrhagy, is avoided or removed, the other measures necessary for preventing the occurrence of this, are those for avoiding the remote causes. These have been enumerated in 775; and the means of avoiding them, so far as within our power, are sufficiently obvious.
- 789. Having thus mentioned the means of preventing either the first attacks, or the recurrence of hæmorrhagy, I must next say how it is to be managed when it has actually come on.
- 790. When an hæmorrhagy has come on, which appears to have arisen from a preternaturally plethoric state, or from some change in the balance of the sanguiferous system, no measures are to be immediately taken for suppressing it; as

we may expect, that when the quantity of blood necessary for the relief of the system is poured out, the effusion will

spontaneously cease.

791. In many cases, however, it may be suspected, that the quantity of blood poured out is not exactly in proportion to the necessities of the system, either for relieving a general plethora, or a particular congestion, but that it is often to a greater quantity than these require. This we suppose to happen in consequence of an inflammatory diathesis prevailing, and of a febrile spasm being formed; and therefore it is in many cases proper, as well as for the most part safe, to moderate the evacuation, and when it threatens to go to excess, to suppress it altogether.

792. An hæmorrhagy may be moderated by avoiding any irritation that might concur to increase it; so that every part of the antiphlogistic regimen is to be observed; in particular, external heat, both as it rarifies the fluids, and stimulates the solids, is to be carefully avoided: and it is probable, that in all cases an hæmorrhagy may be safely moderated by cool

air applied, and cold drink exhibited.

793. A second means, for the same purpose, is, the use of refrigerant medicines, and particularly of acids and nitre.

794. A third means which has been frequently employed, is that of blood-letting. The propriety of this practice may be doubtful, as the quantity of blood poured out by the hæmorrhagy may be supposed to answer the purpose of an evacuation in any other way: and I am ready to allow, that the practice has been often superfluous, and sometimes hurtful, by making a greater evacuation than was necessary or safe. At the same time, I apprehend it is not for the mere purpose of evacuating, that blood-letting is to be practised in the cure of hæmorrhagy; but that it is further necessary for taking off the inflammatory diathesis which prevails, and the febrile spasm that has been formed. Accordingly, in the case of hæmorrhagy, when the pulse is not only frequent,

but quick and full, and does not become softer or slower upon the flowing of the blood, and that the effusion is profuse, and threatens to continue so, it appears to me that blood-letting may be necessary, and I have often found it useful. It seems probable also, that the particular circumstances of venesection may render it more powerful for taking off the tension and inflammatory irritation of the system, than any gradual flow from an artery.

- 795. That a spasm of the extreme vessels has a share in supporting hæmorrhagy, appears to me probable from hence, that blistering has been often found useful in moderating and suppressing the disease.
- 796. Do emetics and vomiting contribute to the cure of hæmorrhagy? See Dr Bryan Robinson on the virtues and power of medicines.
- 797. When an hæmorrhagy is very profuse, and seems to endanger life, or even threaten to induce a dangerous infirmity, it is agreed on all hands, that it is to be immediately suppressed by every means in our power; and particularly, that, besides the means above mentioned for moderating the disease, astringents, internal or external, where the latter can be applied, are to be employed for suppressing it.

798. The internal astringents are either vegetable or fossil.

The vegetable astringents are seldom very powerful in the cure of any hæmorrhagies, except those of the alimentary canal.

The fossil astringents are more powerful; but some choice amongst the different kinds may be proper.

The chalybeates, so frequently employed, do not appear to me to be very powerful.

The preparations of lead are certainly more so, but are otherwise of so pernicious a quality, that they should not be employed except in cases of the utmost danger. The Tinctura Saturnina, or Antiphthisica, as it has been called, ap-

pears to be of little efficacy; but whether from the small portion of lead which it contains, or from the state in which the lead is in it, I am uncertain.

The fossil astringent that appears to me the most power-

ful, and at the same time the most safe, is alum.

799. External astringents, when they can be applied, are more effectual than the internal. The choice of these is left to the surgeons.

800. The most powerful of all astringents appears to me to be cold, which may be employed either by applying cold water to the surface of the body, or by throwing it into the

internal parts.

801. For suppressing hæmorrhagies, many superstitious remedies and charms have been recommended, and pretended to have been employed with success. The seeming success of these, however, has been generally owing to the bystanders mistaking a spontaneous ceasing of the hæmorrhagy for the effect of the remedy. At the same time, I believe, that those remedies may have been sometimes useful, by impressing the mind with horror, awe, or dread.

802. Upon occasion of profuse hæmorrhagies, opiates have been employed with advantage; and, when the fulness and inflammatory diathesis of the system have been previously taken off by the hæmorrhagy itself, or by blood-letting, I

think opiates may be employed with safety.

803. For restraining hæmorrhagy, ligatures have been applied upon the limbs, in the view of retarding the return of the venous blood from the extremities; but they appear to me to be of uncertain and ambiguous use.

804. In the case of profuse hæmorrhagies, no pains are to be taken to prevent a Deliquium Animi, or fainting, as the happening of this is often the most certain means of stopping the hæmorrhagy.

805. Having thus delivered the general doctrine of heemorrhagy, I proceed to consider the particular cases of it. It

may perhaps be remarked that I have marked fewer of these than are commonly enumerated by the nosologists; but my reasons for differing from these authors, must be left to a nosological discussion, to be entered into elsewhere more properly than here.

CHAP. II.

OF THE EPISTAXIS, OR HÆMORRHAGY OF THE NOSE.

G. XXXV. Epistaxis.—Capitis dolor vel gravitas; faciei rubor; profusio sanguinis e naribus.

806. The state of the vessels upon the internal surface of the nose being such as already mentioned (757.), renders an hæmorrhagy from that more frequent than from any other part of the body.

807. The blood commonly flows from one nostril only, and probably because an hæmorrhagy from one vessel relieves the congestion in all the neighbouring vessels.

The blood flowing from both nostrils at the same time, shows commonly a more considerable disease.

808. This hæmorrhagy happens to persons of every constitution and temperament, but most frequently to those of a plethoric habit and sanguine temperament. It happens to both sexes, but most frequently to the male.

809. This hæmorrhagy may occur at any time of life; but most commonly happens to young persons, owing to the state of the balance of the system peculiar to that age, as mentioned in 756.

810. Although generally it happens to persons before they have arrived at their full growth, and more rarely afterwards, yet sometimes it happens to persons after their acmé, and during the state of manhood; and it must then be imputed to an unusually plethoric state of the system; to an habitual determination of the blood to the vessels of the nose; or to the particular weakness of these.

811. In all these cases the disease may be considered as an hæmorrhagy purely arterial, and depending upon an arterial plethora; but it sometimes occurs in the decline of life, when probably it depends upon, and may be considered as a mark of a venous plethora of the vessels of the head. See

772.

812. This hæmorrhagy happens also at any period of life, in certain febrile diseases, which are altogether or partly of an inflammatory nature, and which show a particular determination of the blood to the vessels of the head. These diseases often admit of a solution by this hæmorrhagy, when

it may be properly termed critical.

813. The disease sometimes comes on without any previous symptoms; particularly when some external violence has a share in producing it. But when it proceeds entirely from an internal cause, it is commonly preceded by headachs, redness of the eyes, a florid colour of the face, an unusual pulsation in the temples, a sense of fulness about the nose, and an itching of the nostrils. A bound belly, pale urine, coldness of the feet, and cold shivering over the whole body, are also sometimes among the symptoms that precede the disease.

814. From the weakness of the vessels of the nose, the blood often flows from them without any considerable effort of the whole system, and therefore without any observable febrile disorder; which, however, in many cases, is, in all its circumstances, very discernible.

815. An hæmorrhagy of the nose happening to young

persons, is, and may generally be considered as a slight disease of little consequence, and hardly requiring any remedy. But even in young persons, when it recurs very frequently, and is very copious, it will require particular attention, as it is to be considered as a mark of arterial plethora; and, as frequently returning, it may increase the plethoric state, which, in a more advanced stage of life, may give the blood a determination to parts from which the hæmorrhagy would be more dangerous. All this will more particularly require attention, according as the marks of plethora, and of particular congestion, preceding the hæmorrhagy, are more considerable, and as the flowing of the blood is attended with a more considerable degree of febrile disorder.

816. When the epistaxis happens to persons after their acmé, returning frequently, and flowing copiously, it is always to be considered as a dangerous disease, and as more certainly threatening the consequences mentioned in the last paragraph.

817. When this hæmorrhagy happens in the decline of life, it may be considered as in itself very salutary; but at the same time it is to be considered as a mark of a very dangerous state of the system; that is, as a mark of a very strong tendency to a venous plethora in the vessels of the head; and I have accordingly observed it often followed by apoplexy, palsy, or such like diseases.

818. When an hæmorrhagy from the nose happens in febrile diseases, as mentioned in 812, and is in pretty large quantity, it may be considered as critical and salutary; but it is very apt to be profuse, and even in this way dangerous.

It upon some occasions occurs during the eruptive fever of several exanthemata, and is in such cases sometimes salutary; but if these exanthemata be accompanied with any putrid tendency, this hæmorrhagy, like artificial blood-lettings, may have very bad effects.

819. Having thus explained the several circumstances of

epistaxis, I proceed to consider the management and cure of I use the expression of management, because it has been usually thought to require no cure, but that nature should be allowed to throw out blood in this way very frequently; and as often as it appears to arise from internal causes, that is, from a state of the system supposed to require such evacuation.

820. I am however of opinion, for the reasons given in 779, that this disease is very seldom to be left to the conduct of nature; and that in all cases it should be moderated by keeping the patient in cool air; by giving cold drink; by keeping the body and head erect; by avoiding any blowing of the nose, speaking, or other irritation: and, when the blood has flowed for some time, without showing any tendency to cease, a profuse bleeding is to be prevented by measures employed to stop it, such as pressing the nostril from which the blood flows, washing the face with cold water, or applying this to other parts of the body.

821. Even in the case of young persons, where the disease is least hazardous, and even in the first attacks, I judge such measures to be proper: but they will be still more proper if the disease frequently recurs without any external violence; if the returns shall happen to persons of a habit disposed to be plethoric; and, more particularly, if the marks of a plethoric state appear in the precedent symp-

toms, (813).

822. Even in young persons, if the bleeding be very profuse and long continued, and more especially if the pulse become weak and the face pale, I apprehend it will be proper to suppress the hæmorrhagy by every means in our

power. See 797. and following paragraphs.

823. Further, in the same case of young persons, when the returns of this hæmorrhagy become frequent, and especially with the marks of a plethoric habit, I think it necessary to employ such a regimen as may prevent a plethoric

state (783.—787.). At the same time, care should be taken to avoid all circumstances which may determine the blood more fully to the vessels of the head, or prevent its free return from them; and by keeping an open belly, to make some derivation from them.

824. In adult persons, liable to frequent returns of the epistaxis, the whole of the measures proposed (823.) are more certainly and freely to be employed. When, with the circumstances mentioned in 813, the tendency to a profuse hæmorrhagy appears, a bleeding at the arm may be proper even in young persons; but, in the case of adults, it will be still more allowable, and even necessary.

825. In persons of any age liable to frequent returns of this hæmorrhagy, when the measures proposed in 817. et seq. shall have been neglected, or, from peculiar circumstances in the balance of the system, shall have proved ineffectual, and the symptoms threatening hæmorrhagy (838.) shall appear, it will then be proper, by blood-letting, cooling purgatives, and every part of the antiphlogistic regimen, to prevent the hæmorrhagy, or at least to prevent its being profuse when it does happen.

826. In the circumstances just now mentioned (825.), the measures proposed are proper, and even necessary; but it should at the same time be observed, that these are practised with much less advantage than those pointed out in 824; because, though those suggested here may prevent the coming on of the hæmorrhagy for the present, they certainly however dispose to the return of that plethoric state which required their being used; and there can be no proper security against returns of the disease, but by pursuing the means proposed in 823.

827. When the hæmorrhagy of the nose happens to persons approaching to their full growth, and when its returns have been preceded by the symptoms 813, it may be supposed, that if the returns can be prevented by the measures

proposed in 825, these may be safely employed, as the plethoric state induced will be rendered safe, by the change which is soon to take place in the balance of the system. This, however, cannot be admitted; as the evacuations practised upon this plan will have all the consequences which, I have already observed, may follow the recurrence of the hæmorrhagy itself.

828. When the hæmorrhagy of the nose shall be found to make its returns at nearly stated periods, the measures for preventing it (825.) may be practised with greater certainty; and, upon every repetition of blood-letting, by diminishing the quantity taken away, its tendency to induce a plethora may be in some measure avoided. When indeed the repetition of evacuations is truly unavoidable, the diminishing them upon every repetition is properly practised; but it is a practice of nice and precarious management, and should by no means be trusted to, so far as to supersede the measures proposed in 825, wherever these can be admitted.

sequence of a venous plethora in the vessels of the head, as in 772, the flowing of the blood pretty largely may be allowed, especially when it happens after the suppression or ceasing of the menstrual or hæmorrhoidal flux. But though the flowing of the blood is, on its first occurring, to be allowed, there is nothing more proper than guarding against its returns. This is to be done not only by the measures proposed in 783. et seq., but, as the effects of a plethoric state of the vessels of the head are very uncertain, so, upon any appearance of it, and especially upon any threatening of hæmorrhagy, the plethora is to be removed, and the hæmorrhagy to be obviated immediately by proper evacuations, as blood-letting, purging, and issues, or by restoring suppressed evacuations, where this can be done.

CHAP. III.

OF THE HÆMOPTYSIS, OR HÆMORRHAGY FROM THE LUNGS. \$

- G. XXXVI. Hæmoptysis. Genarum rubor; molestiæ aut doloris, et aliquando caloris, in pectore sensus; dyspnæa; titillatio faucium; tussis aut tussicula sanguinem floridum, sæpe spumosum, rejiciens.
- Sp. 1. Hæmoptysis (plethorica) nulla vi externâ applicatâ, neque prægressâ tussi aut evacuationis solitæ suppressione.
 - Sp. 2. Hæmoptysis (violenta) a vi externâ applicatâ.
- Sp. 3. Hæmoptysis (phthisica) post tussim cum macie et debilitate diuturnam.
- Sp. 4. Hæmoptysis (calculosa) rejectis simul moleculis calculosis plerumque calcariis.
- Sp. 5. Hamoptysis (vicaria) post evacuationis solita suppressionem.

Sect. I.—Of the Phenomena and Causes of Hamoptysis.

- 830. When, after some affection of the breast, blood is thrown out from the mouth, and is brought out with more or less coughing, there can be no doubt that it comes from the lungs; and this generally ascertains the disease of which I am now to treat. But there are cases in which the source of the blood spit out is uncertain; and therefore, some other considerations, to be mentioned hereafter, are often necessary to ascertain the existence of an hæmoptysis.
 - 831. The blood-vessels of the lungs are more numerous vol. 1.

These vessels, of the largest size, as they arise from the heart, are more immediately than in any other part subdivided into vessels of the smallest size; and these small vessels, spread out near to the internal surfaces of the bronchial cavities, are situated in a loose cellular texture, and covered by a tender membrane only: so that, considering how readily and frequently these vessels are gorged with blood, we may understand why an hæmorrhagy from them is, next to that of the nose, the most frequent of any; and particularly, why any violent shock given to the whole body so readily occasions an hæmoptysis.

832. An hæmoptysis may be occasioned by external violence, at any period of life; and I have explained above (760.), why, in adult persons, while the arterial plethora still prevails in the system, that is, from the age of sixteen to that of five-and-thirty, an hæmoptysis may at any time be produced, merely by a plethoric state of the lungs.

833. But it has been also observed above (761), that an hæmoptysis more frequently arises from a faulty proportion between the capacity of the vessels of the lungs and that of those of the rest of the body. Accordingly it is often a hereditary disease, which implies a peculiar and faulty conformation. And the disease also happens especially to persons who discover the smaller capacity of their lungs, by the narrowness of their chest, and by the prominency of their shoulders; which last is a mark of their having been long liable to a difficult respiration.

834. With these circumstances also the disease happens especially to persons of a sanguine temperament; in whom particularly the arterial plethora prevails. It happens likewise to persons of a slender delicate make, of which a long neck is a mark; to persons of much sensibility and irritability, and therefore of quick parts, whose bodies are genelity, and delicate structure; to persons who have been for-

merly liable to frequent hæmorrhagies of the nose; to persons who have suffered a suppression of any hæmorrhagy they had formerly been liable to, the most frequent instance of which is in females who have suffered a suppression of their menstrual flux; and, lastly, to persons who have suffered the amputation of any considerable limb.

835. In most of these cases (834.), the disease happens especially to persons about the time of their coming to their full growth, or soon after it, and this for the reasons fully set forth above.

836. From all that has been said from 831. to 835, the predisponent cause of hæmoptysis will be sufficiently understood, and the disease may happen from the mere circumstance of the predisponent cause arising to a considerable degree. In the predisposed, however, it is often brought on by the concurrence of various occasional and exciting causes. One of these, and perhaps a frequent one, is external heat; which, even when in no great degree, will bring on the disease in spring, and the beginning of summer, while the heat rarifies the blood more than it relaxes the solids, which had been before contracted by the cold of winter. Another exciting cause is a sudden diminution of the weight of the atmosphere, especially when concurring with any effort in bodily exercise. This effort too, alone, may often, in the predisposed, be the exciting cause; and more particularly, any violent exercise of respiration. In short, in the predisposed, any degree of external violence also may bring on the disease.

837. Occasioned by one or other of these causes (836.) the disease comes on with a sense of weight and anxiety in the chest, some uneasiness in breathing, some pain of the breast, or other parts of the thorax, and some sense of heat under the sternum; and very often, before the disease appears, a saltish taste is perceived in the mouth.

838. Immediately before the appearance of blood, a de-

gree of irritation is felt at the top of the larynx. To relieve this a hawking is made, which brings up a little blood, of a florid colour, and somewhat frothy. The irritation returns; and, in the same manner, more blood of a like kind is brought up, with some noise in the wind-pipe, as of air passing through a fluid.

839. This is commonly the manner in which the hæmoptysis begins; but sometimes at the very first the blood comes up by coughing, or at least somewhat of coughing accom-

panies the hawking just now mentioned.

840. The blood issuing is sometimes at first in very small quantity, and soon disappears altogether: but, in other cases, especially when it repeatedly occurs, it is in greater quantity, and frequently continues to appear at times for several days together. It is sometimes profuse; but rarely in such quantity as, either by its excess or by its sudden suffocation, to prove immediately mortal. It commonly either ceases spontaneously, or is stopped by the remedies employed.

841. When blood is thrown out from the mouth, it is not always easy to determine from what internal part it proceeds: whether from the internal surface of the mouth itself, from the fauces, or adjoining cavities of the nose, from the stomach, or from the lungs. It is however very necessary to distinguish the different cases; and, in most instances, it may be done by attending to the following considerations.

842. When the blood spit out proceeds from some part of the internal surface of the mouth itself, it comes out without any hawking or coughing; and generally, upon inspection, the particular source of it becomes evident.

843. When blood proceeds from the fauces, or adjoining cavities of the nose, it may be brought out by hawking, and sometimes by coughing, in the manner we have described in 837. and 839; so that in this way a doubt may arise concerning its real source. A patient often lays hold of these circumstances to please himself with the opinion of its coming from the fauces, and he may be allowed to do so; but a physician cannot readily be deceived, if he consider, that a bleeding from the fauces is more rare than one from the lungs; that the former seldom happens but to persons who have been before liable either to an hæmorrhagy of the nose, or to some evident cause of erosion; and, in most cases, by looking into the fauces, the distillation of the blood, if it comes from thence, will be perceived.

844. When blood proceeds from the lungs, the manner in which it is brought up will commonly show from whence it comes; but, independent of that, there are many circumstances which may concur to point it out, such as the period of life, the habit of body, and other marks of a predisposition (833.—835.); and, together with these, the occasional causes (836.) having been immediately before applied.

845. When vomiting accompanies the throwing out of blood from the mouth, as vomiting and coughing often mutually excite each other; so they may be frequently joined, and render it doubtful, whether the blood thrown out proceeds from the lungs or from the stomach. We may, however, generally decide, by considering, that blood does not so frequently proceed from the stomach as from the lungs; that blood proceeding from the stomach commonly appears in greater quantity, than when it proceeds from the lungs; that the blood proceeding from the lungs is usually of a florid colour, and mixed with a little frothy mucus only; whereas the blood from the stomach is commonly of a darker colour, more grumous, and mixed with the other contents of the stomach; that the coughing or vomiting, according as the one or the other first arises in the cases in which they are afterwards joined, may sometimes point out the source of the blood; and, lastly, that much may be learned from the circumstances and symptoms which have preceded the hæmorrhagy.

Those which precede the hæmoptysis, enumerated in

837, are most of them evident marks of an affection of the lungs. And, on the other hand, the hæmatemesis, or issuing of blood from the stomach, has also its peculiar symptoms and circumstances preceding it; as, for instance, some morbid affection of this organ, or, at least, some pain, anxiety, and sense of weight, referred distinctly to the region of the stomach. To all this may be added, that the vomiting of blood happens more frequently to females than to males; and to the former, in consequence of a suppression of their menstrual flux; and, by attending to all these considerations (842.—845.), the presence of the hæmoptysis may commonly be sufficiently ascertained.

SECT. II.—Of the Cure of Hamoptysis.

846. This disease is sometimes attended with little danger; as, when it happens to females in consequence of a suppression of the menses; when, without any marks of a predisposition, it arises from external violence; or when, from whatever cause arising, it leaves behind it no cough, dysp-mea, or other affection of the lungs. Even in such cases, however, a danger may arise from too large a wound being made in the vessels of the lungs; from a quantity of red blood being left to stagnate in the cavity of the bronchiæ, and, particularly, from any determination of the blood being made into the vessels of the lungs, which, by renewing the hæmorrhagy, may have dangerous consequences. In every instance, therefore, of hæmoptysis, the effusion is to be moderated by the several means mentioned, 792 to 795.

847. These measures are especially necessary when the hæmoptysis arises in consequence of predisposition; and in all cases where there is the appearance of a large effusion, or where the hæmorrhagy frequently returns, the effusion is not only to be moderated, but to be entirely stopped, and the returns of it prevented by every means in our power. See 797, and following.

848. To stop an hæmoptysis, or prevent the returns of it, two medicines have been frequently employed, neither of which I can approve of. These are chalybeates, and the Peruvian bark. As both of them contribute to increase the phlogistic diathesis of the system, they can hardly be safe in any case of active hæmorrhagy, and I have frequently found them hurtful.

849. As the hæmoptysis which happens in consequence of predisposition, is always attended with a phlogistic diathesis; and as the bad consequences of the disease are especially to be apprehended from the continuance of that diathesis; so this is to be industriously taken off by bloodletting, in greater or smaller quantity, and more or less frequently repeated, according as the symptoms shall direct. At the same time, cooling purgatives are to be employed, and every part of the antiphlogistic regimen is to be strictly enjoined. The refrigerants may also be administered, taking care, however, that the acids, and more especially the nitre, do not excite coughing.

850. From what was observed in 795, it will appear, that blistering upon the breast or back may be a remedy of hæmoptysis, when it is present; and that issues in the same places may be useful in preventing the recurrence of it when it has ceased.

851. The avoiding of motion is generally a proper part of the antiphlogistic regimen; and, in the hæmoptysis, nothing is more necessary than avoiding bodily exercise; but some kinds of gestation, as sailing and travelling in an easy carriage, on smooth roads, have often proved a remedy.

352. Such is the treatment I can propose for the hæmoptysis, considered merely as an hæmorrhagy: But when, in spite of all our precautions, it continues to recur, it is often followed by an ulceration of the lungs, and a phthisis pulmonalis. This, therefore, I must now proceed to consider;

but, as it arises also from other causes besides the hæmoptysis, it must be treated of with a more general view.

CHAP. IV.

OF THE PHTHISIS PULMONALIS, OR CONSUMPTION OF THE LUNGS.

Phthisis.—Corporis emaciatio et debilitas, cum tussi, febre hecticâ, et plerumque expectoratione purulentâ.

Sp. 1. Phthisis (incipiens) sine expectoratione puris.

Sp. 2. Phthisis (confirmata) cum expectoratione puris.

Sect. I.—Of the Phenomena and Causes of the Phthisis Pulmonalis.

853. THE Phthisis Pulmonalis, I would define to be, An expectoration of pus or purulent matter from the lungs, attended with a hectic fever.

As this is the principal species of phthisis, I shall frequently, in this chapter, employ the general term of phthisis, though strictly meaning the phthisis pulmonalis.

854. I have met with some instances of an expectoration of purulent matter continuing for many years, accompanied with very few symptoms of hectic, and at least without any hectic exquisitely formed; but, in none of these instances, were the persons so entirely free from symptoms of hectic, as to form any exception to the general definition.

855. In every instance of an expectoration of pus, I pre-

Haen is the only author that I know who has advanced another opinion, and has supposed, that pus may be formed in the blood-vessels, and be from thence poured into the bronchiæ. Admitting this fact, I have attempted an explanation of the appearance of pus without ulceration in 349; but, after all, I cannot help suspecting the accuracy of his observations; must entirely reject his explanation of them; must, however, allow, that we still want facts to support the explanation I have offered, and doubt much if it will apply to any case of phthisis. For these reasons, I still conclude, agreeably to the faith of all other dissections, and the opinions of all physicians, that the symptoms mentioned in our definition depend always upon an ulceration formed in the lungs.

856. It has sometimes happened, that a catarrh was attended with an expectoration of a matter so much resembling pus, that physicians have been often uncertain whether it was mucus or pus, and therefore, whether the disease was a catarrh or a phthisis. It is often of consequence to determine these questions; and it appears to me that it may be generally done, with sufficient certainty, from the following considerations, of which each particular is not always singly decisive, but when they are taken together can hardly deceive us:

- 1. From the colour of the matter; as mucus is naturally transparent, and pus always opaque. When mucus becomes opaque, as it sometimes does, it becomes white, yellow, or greenish; but the last-mentioned colour is hardly ever so remarkable in mucus as in pus.
- 2. From the consistence, as mucus is more viscid and coherent, and pus less so, and may be said to be more friable. When mucus is thrown into water, it is not readily diffused, but remains united in uniform and circular masses; but pus, in the same circumstances, though not readily diffused, does

not remain so uniformly united, and by a little agitation is broken into ragged fragments.

- 3. From the odour, which is seldom perceived in mucus, but frequently in pus. It has been proposed to try the odour of the matter expectorated, by throwing it upon live coals; but in such a trial both mucus and pus give out a disagreeable smell, and it is not easy to distinguish between them.
- 4. From the specific gravity compared with water; and, indeed, it is usual for the mucus of the lungs to swim on the surface of the water, and for pus to sink in it. But in this we may sometimes be deceived, as pus which has entangled a great deal of air may swim, and mucus that is free from air may sink.
- 5. From the mixture which is discernible in the matter brought up; for if a yellow or greenish matter appears surrounded with a quantity of transparent or less opaque and less coloured matter, the more strongly coloured matter may be generally considered as pus; as it is not easy to understand how one portion of the mucus of the lungs can be very considerably changed, while the rest of it is very little so, or remains in its ordinary state.
- 6. From the admixture of certain substances with the matter thrown out from the lungs. To this purpose we are informed by the experiments of the late Mr Charles Darwin, 1. That the vitriolic acid dissolves both mucus and pus, most readily the former: That if water be added to such a solution of mucus, this is separated, and either swims on the surface, or, divided into flocculi, is suspended in the liquor; whereas, when water is added to a like solution of pus, this falls to the bottom, or by agitation is diffused so as to exhibit an uniformly turbid liquor. 2. That a solution of the caustic fixed alkali, after some time, dissolves mucus and generally pus; and if water be added to such solutions, the pus is precipitated, but the mucus is not. From such

experiments it is supposed, that pus and mucus may be certainly distinguished from each other.

7. From the expectoration's being attended with a hectic fever. A catarrh, or expectoration of mucus, is often attended with fever; but never, so far as I have observed, with such a fever as I am presently to describe as a hectic. This, in my opinion, is the most certain mark of a purulent state in some part of the body; and if others have thought differently, I am persuaded that it has been owing to this, that, presuming upon the mortal nature of a confirmed or purulent phthisis, they have considered every case in which a recovery happened, as a catarrh only: but that they may have been mistaken in this, shall be shown hereafter.

857. Having thus considered the first part of the character of the phthisis pulmonalis as a mark of an ulceration of the lungs; and having just now said, that the other part of the character, that is, the hectic fever, is a mark or indication of the same thing; it is proper now to consider this here, as I had with that view omitted it before (74).

858. A hectic fever has the form of a remittent, which has exacerbations twice every day. The first of these occurs about noon, sometimes a little sooner or later; and a slight remission of it happens about five afternoon. This last is soon succeeded by another exacerbation, gradually increasing till after midnight: but after two o'clock of the morning, a remission takes place, which becomes more and more considerable as the morning advances. The exacerbations are frequently attended with some degree of cold shivering; or, at least, the patient is exceedingly sensible to any coolness of the air, seeks external heat, and often complains of a sense of cold, when, to the thermometer, his skin is preternaturally warm. Of these exacerbations, that of the evening is always the most considerable.

859. It has commonly been given as a part of the character of a hectic fever, that an exacerbation of it commonly ap-

pears after taking food; and it is true that dinner, which is taken at noon, or after it, does seem to occasion some exacerbation. But this must not make us judge the mid-day exacerbation to be the effect of eating only; for I have often observed it come on an hour before noon, and often some hours before dinner; which, in this country at present, is not taken till some time after noon. It is indeed to be observed, that in almost every person, the taking food occasions some degree of fever: but I am persuaded this would not appear so considerable in a hectic, were it not that an exacerbation of fever is present from another cause: and accordingly, the taking food in the morning has hardly any sensible effect.

860. I have thus described the general form of hectic fever; but many circumstances attending it are further to be

taken notice of.

The fever I have described does not commonly subsist long, till the evening exacerbations become attended with sweatings; which continue to recur, and to prove more and more profuse through the whole course of the disease.

Almost from the first appearance of the hectic, the urine is high-coloured, and deposites a copious branny red sediment, which hardly ever falls close to the bottom of the vessel.

In the hectic, the appetite for food is generally less impair-

ed than in any other kind of fever.

The thirst is seldom considerable; the mouth is commonly moist; and, as the disease advances, the tongue becomes free from all fur, appears very clean; and in the advanced stages of the disease, the tongue and fauces appear to be somewhat inflamed, and become more or less covered with aphthæ.

As the disease advances, the red vessels of the adnata of the eye disappear, and the whole of the adnata becomes of

a pearly white.

The face is commonly pale; but, during the exacerbations, a florid red, and an almost circumscribed spot, appear on each cheek.

For some time, in the course of a hectic, the belly is bound; but, in the advanced stages of it, a diarrhœa almost always comes on, and continues to recur frequently during the rest of the disease, alternating in some measure with the sweatings mentioned above.

The disease is always attended with a debility, which gradually increases during the course of it.

During the same course an emaciation takes place, and goes to a greater degree than in almost any other case.

The falling off of the hairs, and the adunque form of the nails, are also symptoms of the want of nourishment.

Towards the end of the disease, the feet are often affected with œdematous swellings.

The exacerbations of the fever are seldom attended with any headach, and scarcely ever with delirium.

The senses and judgment commonly remain entire to the very end of the disease; and the mind, for the most part, is confident and full of hope.

Some days before death, a delirium comes on, and commonly continues to the end.

861. The hectic fever now described (858.—860.), as accompanying a purulent state of the lungs, is perhaps the case in which it most frequently appears: but I have never seen it in any case, when there was not evidently, or when I had not ground to suppose there was a permanent purulency or ulceration in some external or internal part. It was for this reason, that in 74. I concluded it to be a symptomic fever only. Indeed, it appears to me to be always the effect of an acrimony absorbed from abscesses or ulcers, although it is not equally the effect of every sort of acrimony; for the scorbutic and cancerous kinds often subsist long in the body without producing a hectic. What is the precise

state of the acrimony producing this I cannot determine, but it seems to be chiefly that of a vitiated purulency.

862. However this may be, it appears, that the hectic's depending in general upon an acrimony, explains its peculiar circumstances. The febrile state seems to be chiefly an exacerbation of that frequency of the pulse, which occurs twice every day to persons in health, and may be produced by acrimony alone. These exacerbations, indeed, do not happen without the proper circumstances of pyrexia; but the spasm of the extreme vessels in a hectic does not seem to be so considerable as in other fevers: and hence the state of sweat and urine which appears so early and so constantly in hectics. Upon the same supposition of an acrimony corrupting the fluids, and debilitating the moving powers, I think that most of the other symptoms may also be explained.

863. Having thus considered the characteristical symptoms and chief part of the proximate cause of phthisis pulmonalis, I proceed to observe, that an ulcer of the lungs, and its concomitant circumstance of hectic fever, may arise from different previous affections of the lungs: all of which however may, in my opinion, be referred to five heads; that is, 1. To an hæmoptysis; 2. To a suppuration of the lungs in consequence of pneumonia; 3. To catarrh; 4. To asthma; or, 5. To a tubercle. These several affections, as causes of ulcers, shall now be considered in the order mentioned.

864. It has been commonly supposed, that an hæmoptysis was naturally, and almost necessarily followed by an ulcer of the lungs; but I will presume to say, that in general this is a mistake; for there have been many instances of hæmoptysis occasioned by external violence, without being followed by any ulcer of the lungs; and there have also been many instances of hæmoptysis from an internal cause, without any consequent ulceration. And this too has been the case, not only when the hæmoptysis happened to young per-

sons, and recurred for several times, but when it has often recurred during the course of a long life. It is indeed easy to conceive, that a rupture of the vessels of the lungs, like that of the vessels of the nose, may be often healed, as the surgeons speak, by the first intention. It is probable, therefore, that it is an hæmoptysis in particular circumstances only, which is necessarily followed by an ulcer; but what these circumstances are, it is difficult to determine. It is possible, that merely the degree of rupture, or frequently repeated rupture, preventing the wound from healing by the first intention, may occasion an ulcer; or it is possible, that red blood effused, and not brought up entirely by coughing, may, by stagnating in the bronchiæ, become acrid, and erode the parts. These however are but suppositions not supported by any clear evidence. And if we consider that those cases of hæmoptysis which follow the predisposition (832.-835.) are those especially which end in phthisis, we shall be led to suspect that there are some other circumstances which concur here to determine the consequence of hæmoptysis, as I shall hereafter endeavour to show.

865. Any supposition, however, which we can make with respect to the innocence of an hæmoptysis, must not supersede the measures proposed above for its cure: both because we cannot certainly foresee what may be the consequences of such an accident, and because the measures above suggested are safe; for, upon every supposition, it is a diathesis phlogistica that may urge on every bad consequence to be apprehended.

866. The second cause of an ulceration of the lungs, to be considered, is a suppuration formed in consequence of pneumonia.

867. From the symptoms mentioned in 858.—859, it may with reason be concluded, that an abscess, or, as it is called, a vomica, is formed in some part of the pleura, and most fre-

quently in that portion of it investing the lungs. Here purulent matter frequently remains for some time, as if inclosed in a cyst: but commonly it is not long before it comes to be either absorbed, and transferred to some other part of the body; or that it breaks through into the cavity of the lungs, or into that of the thorax. In the latter case, it produces the disease called empyema; but it is only when the matter is poured into the cavity of the bronchiæ, that it properly constitutes the phthisis pulmonalis. In the case of empyema, the chief circumstances of a phthisis are indeed also present; but I shall here consider that case only in which the abscess of the lungs gives occasion to a purulent expectoration.

868. An abscess of the lungs, in consequence of pneumonia, is not always followed by phthisis; for sometimes a hectic fever is not formed: the matter poured into the bronchiæ is a proper and benign pus, which is frequently coughed up very readily, and spit out; and though this purulent expectoration should continue for some time, yet if a hectic does not come on, the ulcer soon heals, and every morbid symptom disappears. This has happened so frequently, that we may conclude, that neither the access of the air, nor the constant motion of the lungs, will prevent an ulcer of these parts from healing, if the matter of it be well conditioned. An abscess of the lungs, therefore, does not necessarily produce the phthisis pulmonalis; and if it be followed by such a disease, it must be in consequence of particular circumstances which corrupt the purulent matter produced, render it unsuitable to the healing of the ulcer, and at the same time make it afford an acrimony, which being absorbed, produces a hectic and its consequences.

869. The corruption of the matter of such abscesses may be owing to several causes; as, 1. That the matter effused during the inflammation had not been a pure serum fit to be converted into a laudable pus, but had been united with

other matters which prevented that, and gave a considerable acrimony to the whole: or, 2. That the matter effused, and converted into pus, either merely by a long stagnation in a vomica, or by its connection with an empyema, had been so corrupted as to become unfit for the purpose of pus, in the healing of the ulcer. These seem to be possible causes of the corruption of matter in abscesses, so as to make it the occasion of a phthisis in persons otherwise sound; but it is probable, that a pneumonic abscess does especially produce phthisis when it happens to persons previously disposed to that disease, and therefore only as it concurs with some other causes of it.

870. The third cause supposed to produce phthisis, is a catarrh; which in many cases seems, in length of time, to have the expectoration of mucus proper to it, gradually changed into an expectoration of pus; and, at the same time, by the addition of a hectic fever, the disease, which was at first a pure catarrh, is converted into a phthisis. This supposition, however, is not easily to be admitted. The catarrh is properly an affection of the mucous glands of the trachea and bronchiæ, analogous to the coryza, and less violent kinds of cynanche tonsillaris; which very seldom terminate in suppuration. And although a catarrh should be disposed to such termination, yet the ulcer produced might readily heal up, as it does in the case of a cynanche tonsillaris; and therefore should not produce a phthisis.

871. Further, the catarrh, as purely the effect of cold, is generally a mild disease, as well as of short duration; and of the numerous instances of it, there are at most but very few cases which can be said to have ended in phthisis. In all those cases in which this seems to have happened, it is to me probable, that the persons affected were peculiarly predisposed to phthisis. And the beginning of phthisis so often resembles a catarrh, that the former may have been mistaken for the latter. Besides, to increase the fallacy, it

often happens that the application of cold, which is the most frequent cause of catarrh, is also frequently the exciting cause of the cough which proves the beginning of phthisis.

872. It is to me therefore probable, that a catarrh is very seldom the foundation of phthisis; but I would not positively assert that it never is so: for it is possible, that the cases of a more violent catarrh may have joined with them a pneumonic affection, which may end in a suppuration; or it may happen, that a long continued catarrh, by the violent agitation of the lungs in coughing, will produce some of those tubercles which are presently to be mentioned as the most frequent cause of phthisis.

873. It must be particularly observed here, that nothing said in 872. should allow us to neglect any appearance of catarrh, as is too frequently done; for it may be either the beginning of a phthisis, which is mistaken for a genuine catarrh, or that even as a catarrh continuing long, it may produce a phthisis, as in 872.

874. Many physicians have supposed an acrimony of the fluids, eroding some of the vessels of the lungs, to be a frequent cause of ulceration and phthisis. But this appears to me to be a mere supposition; for, in any of the instances of the production of phthisis which I have seen, there was no evidence of any acrimony of the blood capable of eroding the vessels. It is true, indeed, that in many cases an acrimony subsisting in some part of the fluids, is the cause of the disease; but it is at the same time probable, that this acrimony operates by producing tubercles, rather than by any direct erosion.

875. It has been mentioned in 863. that an asthma may be considered as one of the causes of Phthisis; and by asthma, I mean that species of it which has been commonsty named the Spasmodic. This disease frequently subsists very long without producing any other, and may have its

own peculiar fatal termination, as shall be explained hereafter. But I have seen it frequently end in phthisis; and in such cases I suppose it to operate in the manner above alleged of catarrh, that is, by producing tubercles, and their consequences, which shall be presently mentioned.

876. I come now to consider the fifth head of the causes of phthisis, and which I apprehend to be the most frequent of any. This I have said, in general, to be tubercles; by which term are meant, certain small tumours, which have the appearance of indurated glands. Dissections have frequently shown such tubercles formed in the lungs; and although at first indolent, yet at length they become inflamed, and are thereby changed into little abscesses, or vomicæ, which breaking, and pouring their matter into the bronchiæ, give a purulent expectoration, and thus lay the foundation of phthisis.

877. Though the matter expectorated upon these occasions has the appearance of pus, it is seldom that of a laudable kind; and as the ulcers do not readily heal, but are attended with a hectic fever, for the most part ending fatally, I presume that the matter of the ulcers is imbued with a peculiarly noxious acrimony, which prevents their healing, and produces a phthisis in all its circumstances, as mentioned above.

878. It is very probable that the acrimony which thus discovers itself in the ulcers, existed before, and produced the tubercles themselves; and it is to this acrimony that we must trace up the cause of the phthisis following these tubercles. This acrimony is probably, in different cases, of different kinds; and it will not be easy to determine its varieties; but to a certain length I shall attempt it.

879. In one case, and that too a very frequent one, of phthisis, it appears, that the noxious acrimony is of the same kind with that which prevails in the scrofula. This may be concluded from observing, that a phthisis, at its usual periods, frequently attacks persons born of scrofulous parents; that is, of parents who had been affected with scrofula in their younger years: that very often, when the phthisis appears, there occur at the same time some lymphatic tumours in the external parts; and very often I have found the tabes mesenterica, which is a scrofulous affection, joined with the phthisis pulmonalis. To all this I would add, that even when no scrofulous affection has either manifestly preceded or accompanied a phthisis, this last, however, most commonly affects persons of a habit resembling the scrofulous; that is, persons of a sanguine, or of a sanguineo-melancholic temperament, who have very fine skins, rosy complexions, large veins, soft flesh, and thick upper lip: and further, that in such persons the phthisis comes on in the same manner that it does in persons having tubercles, as shall be immediately explained.

880. Another species of acrimony producing tubercles of the lungs, and thereby phthisis, may be said to be the exanthematic. It is well known, that the small-pox sometimes, and more frequently the measles, lay the foundation of phthisis. It is probable also, that other exanthemata have the same effect; and from the phenomena of the disease, and the dissections of persons who have died of it, it is probable, that all the exanthemata may occasion a phthisis, by affording a matter which in the first place produces tuhercles.

881. Another acrimony, which seems sometimes to produce phthisis, is the syphilitic: but whether such an acrimony produces it in any other persons than the previously

disposed, does not appear to me certain.

882. What other species of acrimony, such as from scurvy, from pus absorbed from other parts of the body, from suppressed eruptions, or from other sources, may also produce tubercles and phthisis, I cannot now decide, but must leave to be determined by those who have had experience of such cases.

883. There is one peculiar case of phthisis, which from my own experience I can take notice of. This is the case of phthisis from a calcareous matter formed in the lungs, and coughed up, frequently with a little blood, sometimes with mucus only, and sometimes with pus. How this matter is generated, or in what precise part of the lungs it is seated, I acknowledge myself ignorant. In three cases of this kind which have occurred to me, there was at the same time no appearance of stony or earthy concretions in any other part of the body. In one of these cases, an exquisitely formed phthisis came on, and proved mortal: while in the other two, the symptoms of phthisis were never fully formed; and after some time, merely by a milk diet and avoiding irritation, the patients entirely recovered.

884. Another foundation for phthisis, analogous, as I judge, to that of tubercles, is that which occurs to certain artificers, whose employments keep them almost constantly exposed to dust; such as stone-cutters, millers, flax-dressers, and some others. I have not observed in this country many instances of phthisis which could be referred to this cause; but from Ramazzini, Morgagni, and some other writers, we must conclude such cases to be more frequent in the southern parts of Europe.

885. Besides those now mentioned, there are probably some other causes producing tubercles, which have not yet been ascertained by observation; and it is likely, that in the state of tubercles there is a variety not yet accounted for: but all this must be left to future observation and inquiry.

886. It has been frequently supposed by physicians, that the phthisis is a contagious disease; and I dare not assert that it never is such: but in many hundred instances of the disease which I have seen, there has been hardly one which to me could appear to have arisen from contagion. It is

possible, that in warmer climates the effects of contagion may be more discernible.

After having said that a phthisis arises from tubercles more frequently than from any other cause, and after having attempted to assign the variety of these, I now proceed to mention the peculiar circumstances and symptoms which usually accompany the coming on of the disease from tubercles.

887. A tuberculous and purulent state of the lungs has been observed in very young children, and in some others at several different periods before the age of puberty and full growth; but instances of this kind are rare: and the attack of phthisis, which we have reason to impute to tubercles, usually happens at the same period which I have assigned for the coming on of the hæmoptysis.

888. The phthisis from tubercles does also generally affect the same habits as the hæmoptysis, that is, persons of a slender make, of long necks, narrow chests, and prominent shoulders; but very frequently the persons liable to tubercles have less of the florid countenance, and of the other marks of an exquisitely sanguine temperament, than the

persons liable to hæmoptysis.

889. This disease, arising from tubercles, usually commences with a slight and short cough, which becomes habitual, is often little remarked by those affected, and sometimes so little as to be absolutely denied by them. At the same time, their breathing becomes easily hurried by any bodily motion, their body grows leaner, and they become languid and indolent. This state sometimes continues for a year, or even for two years, without the persons making any complaint of it, excepting only that they are affected by cold more readily than usual, which frequently increases their cough, and produces some catarrh. This again, however, is sometimes relieved; is supposed to have arisen from cold alone, and, therefore, gives no alarm, either to the

patient or his friends, nor leads them to take any precautions.

- 890. Upon one or other of these occasions of catching cold, as we commonly speak, the cough becomes more considerable; is particularly troublesome upon the patient's lying down at night, and in this state continues longer than is usual in the case of a simple catarrh. This is more especially apt to call for attention, if the increase and continuance of cough come on during the summer season.
- 891. The cough which comes on, as in 889, is very often for a long time without any expectoration; but when, from repeatedly catching cold, it becomes more constant, it is then, at the same time, attended with some expectoration, which is most considerable in the mornings. The matter of this expectoration becomes by degrees more copious, more viscid, and more opaque; at length of a yellow or greenish colour, and of a purulent appearance. The whole of the matter, however, is not always at once entirely changed in this manner; but, while one part of it retains the usual form of mucus, another suffers the changes now described.
- 892. When the cough increases, and continues very frequent through the night, and when the matter expectorated undergoes the changes I have mentioned, the breathing at the same time becomes more difficult, and the emaciation and weakness go on also increasing. In the female sex, as the disease advances, and sometimes early in its progress, the menses cease to flow; and this circumstance is to be considered as commonly the effect, although the sex themselves are ready to believe it the sole cause of the disease.
- 893. When the cough comes on as in 889, the pulse is often natural, and for some time after continues to be so; but the symptoms have seldom subsisted long before the pulse becomes frequent, and sometimes to a considerable degree, without much of the other symptoms of fever. At length, however, evening exacerbations become remarkable, and by

degrees the fever assumes the exquisite form of hectic, as described in 858.—860.

894. It is seldom that the cough, expectoration and fever, go on increasing in the manner now described, without some pain being felt in some part of the thorax. It is usually and most frequently felt at first under the sternum, and that especially, or almost only, upon occasion of coughing; but very often, and that, too, early in the course of the disease, a pain is felt in one side, sometimes very constantly, and so as to prevent the person from lying easily upon that side; but, at other times, the pain is felt only upon a full inspiration, or upon coughing. Even when no pain is felt, it generally happens, that phthisical persons cannot lie easily on some one of their sides, without having their difficulty of breathing increased, and their cough excited.

895. The phthisis begins, and sometimes proceeds to its fatal issue, in the manner described from 889. to 895, without any appearance of hæmoptysis. Such cases are, indeed, rare, but it is very common for the disease to advance far, and even to an evident purulency and hectic state, without any appearance of blood in the spitting; so that it may be affirmed the disease is frequently not founded in hæmoptysis. At the same time, we must allow, not only that it sometimes begins with an hæmoptysis, as is said in 864: but further that it seldom happens, that, in the progress of the disease, more or less of an hæmoptysis does not appear. Some degree of blood-spitting does indeed appear sometimes in the state mentioned 889. 893, but more commonly in the more advanced stages of the disease only, and particularly upon the first appearance of purulency. However this may be, it is seldom, in the phthisis from tubercles, that the hæmoptysis is considerable, or requires any remedies different from those which are otherwise necessary for the state of the tubercles.

896. I have now described a succession of symptoms which, in different cases, occupy more or less time. In this

climate they very often take up some years, the symptoms appearing especially in the winter and spring: commonly becoming easier, and sometimes almost disappearing, during the summer; but returning again in winter, they at length, after two or three years, prove fatal, towards the end of spring or beginning of summer.

897. In this disease, the prognosis is, for the most part, unfavourable. Of those affected with it, the greater number die; but there are also many of them who recover entirely, after having been in very unpromising circumstances. What are, however, the circumstances more certainly determining to a happy or to a fatal event, I have not yet been able to ascertain.

898. The following aphorisms are the result of my observations.

A phthisis pulmonalis from hæmoptysis, is more frequently recovered than one from tubercles.

An hæmoptysis not only is not always followed by a phthisis, as we have said above (864.); but even when followed by an ulceration, the ulceration is sometimes attended with little of hectic, and frequently admits of being soon healed. Even when the hæmoptysis and ulceration have happened to be repeated, there are instances of persons recovering entirely after several such repetitions.

A phthisis from a suppuration in consequence of pneumonic inflammation, is that which most rarely occurs in this climate; and a phthisis does not always follow such suppuration, when the abscess formed soon breaks, and discharges a laudable pus; but, if the abscess continue long shut up, and till after a considerable degree of hectic has been formed, a phthisis is then produced, equally dangerous as that from other causes.

A phthisis from tubercles, has, I think, been recovered; but it is, of all others, the most dangerous; and, when arising from a hereditary taint, is almost certainly fatal.

The danger of a phthisis, from whatever cause it may have arisen, is most certainly to be judged of by the degree to which the hectic and its consequences have arrived. From a certain degree of emaciation, debility, profuse sweating, and diarrhœa, no person recovers.

A mania coming on, has been found to remove all the symptoms, and sometimes has entirely cured the disease; but, in other cases, upon the going off of the mania, the

phthisis has recurred, and proved fatal.

The pregnancy of women has often retarded the progress of a phthisis; but commonly it is only till after delivery, when the symptoms of phthisis return with violence, and soon prove fatal.

SECT. II .- Of the Cure of Phthisis.

899. From what has been just now said, it will readily appear, that the cure of the phthisis pulmonalis must be exceedingly difficult, and that even the utmost care and attention in the employment of remedies have seldom succeeded. It may be doubtful whether this failure is to be imputed to the imperfection of our art, or to the absolutely incurable nature of the disease. I am extremely averse in any case to admit of the latter supposition, and can always readily allow of the former; but, in the mean time, must mention here, what has been attempted towards either curing or moderating the violence of this disease.

900. It must be obvious, that, according to the different circumstances of this disease, the method of cure must be different. Our first attention should be employing in watching the approach of the disease, and preventing its proceed-

ing to an incurable state.

In all persons of a phthisical habit, and especially in those born of phthisical parents, the slightest symptoms of the approach of phthisis, at the phthisical period of life, ought to be attended to.

901. When an hæmoptysis occurs, though it be not always followed with ulceration and phthisis, these, however, are always to be apprehended, and every precaution is to be taken against them. This is especially to be done, by employing every means of moderating the hæmorrhagy, and of preventing its return, directed in 892, et seq.; and these precautions ought to be continued for several years after the occurrence of the hæmoptysis.

902. The phthisis which follows a suppuration from pneumonic inflammation, can only be prevented with certainty, by obtaining a resolution of such inflammation. What may be attempted towards the cure of an abscess and ulcer which have taken place, I shall speak of hereafter.

903. I have said, it is doubtful if a genuine catarrh ever produces a phthisis, but have allowed that it possibly may; and both upon this account, and upon account of the ambiguity which may arise, whether the appearing catarrh be a primary disease, or the effect of a tubercle, I consider it as of consequence to cure a catarrh as soon as possible after its first appearance: More especially, when it shall linger, and continue for some time, or shall, after some intermission, frequently return, the cure of it should be diligently attempted. The measures requisite for this purpose shall be mentioned afterwards, when we come to treat of catarrh as a primary disease; but, in the mean time, the means necessary for preventing its producing a phthisis shall be mentioned immediately, as they are the same with those I shall point out as necessary for preventing a phthisis from tubercles.

904. The preventing of a phthisis from asthma must be, by curing, if possible, the asthma, or at least by moderating it as much as may be done; and, as it is probable that asthma occasions phthisis, by producing tubercles, the measures

necessary for preventing phthisis from asthma will be the same with those necessary in the case of tubercles, which I am now about to mention.

905. I consider tubercles as by much the most frequent cause of phthisis; and, even in many cases where this seems to depend upon hæmoptysis, catarrh, or asthma, it does, however, truly arise from tubercles. It is upon this subject, therefore, that I shall have occasion to treat of the measures most commonly requisite for curing phthisis.

906. When, in a person born of phthisical parents, of a phthisical habit, at the phthisical period of life, the symptoms (889.) in the spring or beginning of summer, shall appear in the slightest degree, we may presume that a tubercle, or tubercles, either have been formed, or are forming in the lungs; and, therefore, that every means we can devise for preventing their formation, or for procuring their resolution, should be employed immediately, even although the patient himself should overlook or neglect the symptoms, as imputing them to accidental cold.

907. This is certainly the general indication; but how it may be executed, I cannot readily say. I do not know that, at any time, physicians have proposed any remedy capable of preventing the formation of tubercles, or of resolving them when formed. The analogy of scrofula gives no assistance in this matter. In scrofula, the remedies that are seemingly of most power, are sea-water, or certain mineral waters; but these have generally proved hurtful in the case of tubercles of the lungs. I have known several instances of mercury very fully employed for certain diseases, in persons who were supposed at the same time to have tubercles formed, or forming, in their lungs; but though the mercury proved a cure for those other diseases, it was of no service in preventing phthisis, and in some cases seemed to hurry it on.

908. Such appears to me to be the present state of our

art, with respect to the cure of tubercles; but I do not despair of a remedy for the purpose being found hereafter. In the mean time, all that at present seems to be within the reach of our art, is to take the measures proper for avoiding the inflammation of tubercles. It is probable, that tubercles may subsist long without producing any disorder; and I am disposed to think, that nature sometimes resolves and discusses tubercles which have been formed; but that nature does this only when the tubercles remain in an uninflamed state; and, therefore, that the measures necessary to be taken are chiefly those for avoiding the inflammation of the tubercles.

909. The inflammation of a tubercle of the lungs is to be avoided upon the general plan of avoiding inflammation, by blood-letting, and by an antiphlogistic regimen; the chief part of which, in this case, is the use of a low diet. This supposes a total abstinence from animal food, and the using of vegetable food almost alone; but it has been found, that it is not necessary for the patient to be confined to vegetables of the weakest nourishment, it being sufficient that the farinacea be employed, and, together with these, milk.

910. Milk has been generally considered as the chief remedy in phthisis, and in the case of every tendency to it; but whether from its peculiar qualities, or from its being of a lower quality, with respect to nourishment, than any food entirely animal, is not certainly determined. The choice and administration of milk will be properly directed, by considering the nature of the milk of the several animals from which it may be taken, and the particular state of the patient with respect to the period and circumstances of the disease, and to the habits of his stomach with respect to milk.

911. A second means of preventing the inflammation of the tubercles of the lungs, is, by avoiding any particular irritation of the affected part, which may arise from any violent exercise of respiration: from any considerable degree of bodily exercise; from any position of the body which straitens the capacity of the thorax; and, lastly, from cold applied to the surface of the body, which determines the blood in greater quantity to the internal parts, and particular-

ly to the lungs.

912. From the last-mentioned consideration, the application of cold in general, and, therefore, the winter season, in cold climates, as diminishing the cutaneous perspiration, is to be avoided; but, more particularly, that application of cold is to be shunned that may suppress perspiration, to the degree of occasioning a catarrh, which consists in an inflammatory determination to the lungs, and may therefore most certainly produce an inflammation of the tubercles there.

By considering, that the avoiding heat is a part of the antiphlogistic regimen above recommended, and by comparing this with what has been just now said respecting the avoiding cold, the proper choice of climates and seasons for

phthisical patients will be readily understood.

913. A third means of avoiding the inflammation of the tubercles of the lungs, consists in diminishing the determination of the blood to the lungs, by supporting and increasing the determination to the surface of the body, which is to be chiefly and most safely done by warm clothing, and the

frequent use of the exercises of gestation.

914. Every mode of gestation has been found of use in phthisical cases; but riding on horseback, as being accompanied with a great deal of bodily exercise, is less safe in persons liable to an hæmoptysis. Travelling in a carriage, unless upon very smooth roads, may also be of doubtful effect; and all the modes of gestation that are employed on land, may fall short of the effects expected from them, because they cannot be rendered sufficiently constant; and therefore it is, that sailing, of all other modes of gestation, is the most effectual in pneumonic cases, as being both the smoothest and most constant.

It has been imagined, that some benefit is derived from the state of the atmosphere upon the sea; but I cannot find that any impregnation of this which can be supposed to take place can be of service to phthisical persons. It is, however, probable, that frequently some benefit may be derived from the more moderate temperature and greater purity of the air upon the sea.

915. In order to take off any inflammatory determination of the blood into the vessels of the lungs, blisters applied to some part of the thorax may often be of service; and, for the same purpose, as well as for moderating the general inflammatory state of the body, issues of various kinds may be employed with advantage.

916. The several measures to be pursued in the case of what is properly called an Incipient Phthisis, have now been mentioned; but they have seldom been employed in such cases in due time, and have, therefore, perhaps, seldom proved effectual. It has more commonly happened, that, after some time, an inflammation has come upon the tubercle, and an abscess has been formed, which, opening into the cavity of the bronchiæ, has produced an ulcer, and a confirmed phthisis.

917. In this state of matters, some new indications, different from the former, may be supposed to arise; and indications for preventing absorption, for preventing the effects of the absorbed matter upon the blood, and for healing the ulcer, have been actually proposed. I cannot find, however, that any of the means proposed for executing these indications are either probable, or have proved effectual. If, upon some occasions, they have appeared to be useful, it has been probably by answering some other intention.

While no antidote against the poison which especially operates here, seems to have been as yet found out, it appears to me that too great a degree of inflammation has a great share in preventing the healing of the ulcer which oc-

curs; and such inflammation is certainly what has a great share in urging on its fatal consequences. The only practice, therefore, which I can venture to propose, is the same in the ulcerated as in the crude state of a tubercle; that is, the employment of means for moderating inflammation, which have been already mentioned (909. et seq.)

918. The balsamics, whether natural or artificial, which have been so commonly advised in cases of phthisis, appear to me to have been proposed upon no sufficient grounds, and to have proved commonly hurtful. The resinous and acrid substance of myrrh, lately recommended, has not appeared to me to be of any service, and in some cases to have

proved hurtful.

919. Mercury, so often useful in healing ulcers, has been speciously enough proposed in this disease; but whether that it be not adapted to the particular nature of the ulcers of the lungs occurring in phthisis, or that it proved hurtful because it cannot have effect without exciting such an inflammatory state of the whole system, as, in a hectic state, must prove very hurtful, I cannot determine. Upon many trials which I have seen made, it has proved of no service, and commonly has appeared to be manifestly pernicious.

920. The Peruvian bark has been recommended for several purposes in phthisical cases; and it is said, upon some occasions, to have been useful; but I have seldom found it to be so: and as by its tonic power it increases the phlogistic diathesis of the system, I have frequently found it hurtful. In some cases, where the morning remissions of the fever were considerable, and the noon exacerbations well marked, I have observed the Peruvian bark given in large quantities with the effect of stopping these exacerbations, and at the same time of relieving the whole of the phthisical symptoms; but in the cases in which I observed this, the fever showed a constant tendency to recur; and at length the phthisical symptoms also returned, and proved quickly fatal.

921. Acids of all kinds, as antiseptic and refrigerant, are useful in cases of phthisis; but the native acid of vegetables is more useful than the fossil acids, as it can be given in much larger quantities, and may also be given more safely than vinegar, being less liable to excite coughing.

922. Though our art can do so little towards the cure of this disease, we must, however, palliate the uneasy symptoms of it as well as we can. The symptoms especially urgent, are the cough and diarrhea. The cough may be in some measure relieved by demulcents (873.); but the relief obtained by these is imperfect and transitory, and very often the stomach is disturbed by the quantity of oily, mucilaginous, and sweet substances which are on these occasions taken into it.

923. The only certain means of relieving the cough, is by employing opiates. These indeed certainly increase the phlogistic diathesis of the system; but commonly they do not so much harm in this way, as they do service by quieting the cough, and giving sleep. They are supposed to be hurtful by checking expectoration; but they do it for a short time only; and, after a sound sleep, the expectoration in the morning is more easy than usual. In the advanced state of the disease, opiates seem to increase the sweatings that occur; but they compensate this by the ease they afford in a disease which cannot be cured.

924. The diarrhœa which happens in the advanced state of this disease, is to be palliated by moderate astringents, mucilages, and opiates.

Rhubarb, so commonly prescribed in every diarrhæa, and all other purgatives, are extremely pernicious in the colliquative diarrhæa of hectics.

Fresh subacid fruits, supposed to be always laxative, are often, in the diarrhoa of hectics, by their antiseptic quality, very useful.

CHAP. V.

OF THE HÆMORRHOIS, OR, OF THE HÆMORRHOIDAL SWELLING AND FLUX.

- G. XXXVII. Hæmorrhois.—Capitis gravitas vel dolor; vertigo; lumborum dolor; dolor ani; circa anum tubercula livida dolentia, e quibus plerumque profluit sanguis, qui aliquando etiam, nullo tumore apparente, ex ano stillat.
 - Sp. 1. Hæmorrhois (tumens) externa a mariscis.
 - Sp. 2. Hæmorrhois (procidens) externa a procidentià ani.
- Sp. 3. Hæmorrhois (fluens) interna absque tumore externo, vel procidentià ani.
- Sp. 4. Hamorrhois (cæca) cum dolore et tumore ani, sine profusione sanguinis.

Sect. I .- Of the Phenomena and Causes of the Hamorrhois.

925. A discharge of blood from small tumours on the verge of the anus, is the symptom which generally constitutes the Hæmorrhois; or as it is vulgarly called, the Hæmorrhoidal Flux. But a discharge of blood from within the anus, when the blood is of a florid colour, showing it to have come from no great distance, is also considered as the same disease; and physicians have agreed in making two cases or varieties of it, under the names of External and Internal Hæmorrhois.

926. In both cases it is supposed, that the flow of blood

is from tumours previously formed, which are named Hæmorrhoids, or Piles; and it frequently happens, that the tumours exist without any discharge of blood; in which case, however, they are supposed to be a part of the same disease, and are named Hæmorrhoides Cæcæ, or Blind Piles.

927. These tumours, as they appear without the anus, are sometimes separate, round, and prominent, on the verge of the anus; but frequently the tumour is only one tumid ring, forming, as it were, the anus pushed without the body.

928. These tumours, and the discharge of blood from them, sometimes come on as an affection purely topical, and without any previous disorder in other parts of the body: but it frequently happens, even before the tumours are formed, and more especially before the blood flows, that various disorders are felt in different parts of the body, as headach, vertigo, stupor, difficulty of breathing, sickness, colic-pains, pain of the back and loins; and often, together with more or fewer of these symptoms, there occurs a considerable degree of pyrexia.

The coming on of the disease with these symptoms, is usually attended with a sense of fulness, heat, itching, and pain in and about the anus.

Sometimes the disease is preceded by a discharge of serous matter from the anus; and sometimes this serous discharge, accompanied with some swelling, seems to be in place of the discharge of blood, and to relieve those disorders of the system which we have mentioned. This, serous discharge, therefore, has been named the Hæmorrhois Alba.

929. In the hæmorrhois, the quantity of blood discharged is different upon different occasions. Sometimes the blood flows only upon the person's going to stool; and commonly, in larger or less quantity, follows the discharge of the fæces. In other cases, the blood flows without any discharge of fæces; and then, generally, it is after having been

preceded by the disorders above mentioned, when it is also commonly in larger quantity. This discharge of blood is often very considerable; and by the repetition, it is often so great, as we could hardly suppose the body to bear but with the hazard of life. Indeed, though rarely, it has been so great as to prove suddenly fatal. These considerable discharges occur especially to persons who have been frequently liable to the disease. They often induce great debility: and frequently a leucophlegmatia, or dropsy, which proves fatal.

The tumours and discharges of blood in this disease often

recur at exactly stated periods.

930. It often happens, in the decline of life, that the hæmorrhoidal flux, formerly frequent, ceases to flow; and, upon that event, it generally happens that the persons are affected with apoplexy or palsy.

931. Sometimes hæmorrhoidal tumours are affected with considerable inflammation, which, ending in suppuration, gives occasion to the formation of fistulous ulcers in those

parts.

932. The hæmorrhoidal tumours have been often considered as varicous tumours, or dilatations of veins; and it is true, that in some cases varicous dilatations have appeared upon dissection. These however do not always appear; and I presume it is not the ordinary case, but that the tumours are formed by an effusion of blood into the cellular texture of the intestine near to its extremity. These tumours, especially when recently formed, frequently contain fluid blood; but, after they have remained for some time, they are commonly of a firmer substance.

933. From a consideration of their causes, to be hereafter mentioned, it is sufficiently probable, that hæmorrhoidal tumours are produced by some interruption of the free return of blood from the veins of the lower extremity of the rectum; and it is possible, that a considerable accumulation of blood in these veins may occasion a rupture of their extremities, and thus produce the hæmorrhagy or tumours I have mentioned. But, considering that the hæmorrhagy occurring here is often preceded by pain, inflammation, and a febrile state, as well as by many other symptoms which show a connection between the topical affection and the state of the whole system, it seems probable that the interruption of the venous blood, which we have supposed to take place, operates in the manner explained in 769; and, therefore, that the discharge of blood here is commonly from arteries.

934. Some physicians have been of opinion, that a difference in the nature of the hæmorrhois, and of its effects upon the system, might arise from the difference of the hæmorrhoidal vessels from which the blood issued. But it appears to me, that hardly in any case we can distinguish the vessels from which the blood flows; and that the frequent inosculations of both the arteries and veins which belong to the lower extremity of the rectum, will render the effects of the hæmorrhagy nearly the same, from whichsoever of these vessels the blood proceed.

935. In 769. I have endeavoured to explain the manner in which a certain state of the sanguiferous system might give occasion to an hæmorrhoidal flux; and I have no doubt that this flux may be produced in that manner. I cannot, however, by any means admit that the disease is so often produced in that manner, or that, on its first appearance, it is so frequently a systematic affection, as the Stahlians have imagined, and would have us to believe. It occurs in many persons before the period of life at which the venous plethora takes place; it happens to females in whom a venous plethora, determined to the hæmorrhoidal vessels, cannot be supposed: and it happens to both sexes, and to persons of all ages, from causes which do not affect the system, and are manifestly suited to produce a topical affection only.

936. These causes of a topical affection are, in the first

place, the frequent voiding of hard and bulky fæces, which, not only by their long stagnation in the rectum, but especially when voided, must press upon the veins of the anus, and interrupt the course of the blood in them. It is for this reason that the disease happens so often to persons of a slow and bound belly.

937. From the causes just now mentioned, the disease happens especially to persons liable to some degree of a prolapsus ani. Almost every person in voiding fæces has the internal coat of the rectum more or less protruded without the body; and this will be to a greater or less degree, according as the hardness and bulk of the fæces occasion a greater or less effort or pressure upon the anus. While the gut is thus pushed out, it often happens that the sphincter ani is contracted before the gut is replaced; and, in consequence thereof, a strong constriction is made, which preventing the fallen-out gut from being replaced, and at the same time preventing the return of blood from it, occasions its being considerably swelled, and its forming a tumid ring round the anus.

938. Upon the sphincter's being a little relaxed, as it is immediately after its strong contraction, the fallen-out portion of the gut is commonly again taken within the body; but by the frequent repetition of such an accident, the size and fulness of the ring formed by the fallen-out gut is much increased. It is therefore more slowly and difficultly replaced; and in this consists the chief uneasiness of hæmorrhoidal persons.

939. As the internal edge of the ring mentioned, is necessarily divided by clefts, the whole often assumes the appearance of a number of distinct swellings; and it also frequently happens, that some portions of it, more considerably swelled than others, become more protuberant, and form those small tumours more strictly called Hæmorrhoids, or Piles.

- 940. From considering that the pressure of fæces, and other causes interrupting the return of venous blood from the lower extremity of the rectum, may operate a good deal higher up in the gut than that extremity, it may be easily understood that tumours may be formed within the anus; and probably it also happens, that some of the tumours formed without the anus, as in 939, may continue when taken within the body, and even be increased by the causes just now mentioned. It is thus that I would explain the production of internal piles, which, on account of their situation and bulk, are not protruded on the person's going to stool, and are often therefore more painful. The same internal piles are more especially painful, when affected by the hæmorrhagic effort described in 745. and 769.
- 941. The production of piles is particularly illustrated by this, that pregnant women are frequently affected with them. This is to be accounted for, partly from the pressure of the uterus upon the rectum, and partly from the costive habit to which pregnant women are usually liable. I have known many instances of piles occurring for the first time during the state of pregnancy; and there are few women that have born children who are afterwards entirely free from piles. The Stahlians have commonly asserted, that the male sex is more frequently affected with this disease than the female; but in this country I have constantly found it otherwise.
- 942. It is commonly supposed, that the frequent use of purgatives, especially of those of the more acrid kind, and more particularly of aloetics, is apt to produce the hæmorrhoidal affection; and as these purgatives stimulate chiefly the great guts, it seems sufficiently probable that they may excite this disease.
- 943. I have now mentioned several causes which may produce the hæmorrhoidal tumours and flux as a topical affection only: but must observe farther, that although the

disease appears first as a purely topical affection, it may, by frequent repetition, become habitual, and therefore may become connected with the whole system, in the manner already explained, with respect to hæmorrhagy in general, in 748.

ed, apply very fully to the case of the hæmorrhoidal flux; and will the more readily apply, from the person who has been once affected being much exposed to a renewal of the causes which first occasioned the disease; and from many persons being much exposed to a congestion in the hæmorrhoidal vessels, in consequence of their being often in an erect position of the body, and in an exercise which pushes the blood into the depending vessels, while at the same time the effects of these circumstances are much favoured by the abundance and laxity of the cellular texture about the rectum.

945. It is thus that the hæmorrhoidal flux is so often artificially rendered an habitual and systematic affection; and I am persuaded, that it is this which has given occasion to the Stahlians to consider the disease as almost universally such.

946. It is to be particularly observed here, that when the hæmorrhoidal disease has either been originally, or has become, in the manner just now explained, a systematic affection, it then acquires a particular connection with the stomach, so that certain affections there excite the hæmorrhoidal disease, and certain states of the hæmorrhoidal affection excite disorders of the stomach.

It is perhaps owing to this connection, that the gout sometimes affects the rectum. See 525.

Sect. II .- Of the Cure of Hæmorrhoidal Affections.

947. Almost at all times it has been an opinion amongst

physicians, and from them spread amongst the people, that the hæmorrhoidal flux is a salutary evacuation, which prevents many diseases that would otherwise have happened; and that it even contributes to give long life. This opinion, in later times, has been especially maintained by Dr Stahl, and his followers; and has had a great deal of influence upon the practice of physic in Germany.

948. The question arises with respect to hæmorrhagy in general, and indeed it has been extended so far by the Stahlians. I have accordingly considered it as a general question (767.-780.), but it has been more especially agitated with regard to the disease now under our consideration: And as to this, although I am clearly of opinion, that the hæmorrhois may take place in consequence of the general state of the system (769.), or, what is still more frequent, that by repetition it may become connected with that general state (943.), and in either case cannot be suppressed without great caution; I must beg leave, notwithstanding this, to maintain, that the first is a rare case, that generally the disease first appears as an aeffection purely topical (935. -942.), and that the allowing it to become habitual is never proper. It is a nasty disagreeable disease, ready to go to excess, and to be thereby very hurtful, as well as sometimes fatal. At best it is liable to accidents, and thereby to unhappy consequences. I am therefore of opinion, that not only the first approaches of the disease are to be guarded against, but even that when it has taken place for some time, from whatever cause it may have proceeded, the flux is always to be moderated, and the necessity of it, if possible superseded.

949. Having delivered these general rules, I proceed to mention more particularly how the disease is to be treated, according to the different circumstances under which it may appear.

When we can manifestly discern the first appearance of

the disease to arise from causes acting upon the part only, the strictest attention should be employed in guarding

against the renewal of these causes.

950. One of the most frequent of the remote causes of the hæmorrhoidal affections, is a slow and bound belly (936.); and this is to be constantly obviated by a proper diet, which each individual's own experience must direct; or if the management of diet be not effectual, the belly must be kept regular by such medicines as may prove gently laxative, without irritating the rectum. In most cases it will be of advantage to acquire a habit with respect to time, and to observe it exactly.

951. Another cause of hæmorrhois to be especially attended to, is prolapsus or protrusion of the anus, which is apt to happen on a person having a stool (937.). If it shall occur to any considerable degree, and at the same time be not easily and immediately replaced, it most certainly produces piles, or increases them when otherwise produced. Persons therefore liable to this prolapsus, should, upon their having been at stool, take great pains to have the gut immediately replaced, by lying down in a horizontal posture, and pressing gently upon the anus, till the reduction shall be completely obtained.

952. When the prolapsus of which I speak is occasioned only by voiding hard and bulky fæces, it should be obviated by the means mentioned in 950, and may be thereby avoided. But in some persons it is owing to a laxity of the rectum; in which case it is often most considerable upon occasion of a loose stool: and then the disease is to be treated by astringents, as well as by proper artifices for prevent-

ing the falling down of the gut.

953. These are the means to be employed upon the first approaches of the hæmorrhoidal affection; and when from neglect it shall have frequently recurred, and has become in some measure established, they are no less proper. In the

latter case, however, some other means are also necessary. It is particularly proper to guard against a plethoric state of the body; consequently to avoid a sedentary life, a full diet, and particularly intemperance in the use of strong liquor, which, as I should have observed before, is, in all cases of hæmorrhagy, of the greatest influence in increasing the disposition to the disease.

954. I need hardly repeat here, that exercise of all kinds must be a chief means of obviating and removing a plethoric state of the body; but upon occasion of the hæmorrhoidal flux immediately approaching, both walking and riding, as increasing the determination of the blood into the hæmorrhoidal vessels, are to be avoided. At other times, when no such determination has been already formed, those modes of exercise may be very properly employed.

955. Cold bathing is another remedy that may be employed to obviate plethora, and prevent hæmorrhagy; but it is to be used with caution. When the hæmorrhoidal flux is approaching, it may be dangerous to turn it suddenly aside by cold bathing: but during the intervals of the disease, this remedy may be employed with advantage, and in persons liable to a prolapsus ani, the frequent washing of the anus with cold water may be very useful.

956. These are the means for preventing the recurrence of the hæmorrhoidal flux; and in all cases, when it is not immediately approaching, they are to be employed. When it has actually come on, means are to be employed for moderating it as much as possible, by the person's lying in a horizontal position upon a hard bed; by avoiding exercise in an erect posture; by using a cool diet; by avoiding external heat; and by obviating the irritation of hardened fæces by the use of proper laxatives (950.). From what has been said above, as to the being careful not to increase the determination of the blood into the hæmorrhoidal vessels, the propriety of these measures must sufficiently appear:

and if they were not so generally neglected, many persons would escape the great trouble, and the various bad consequences which so frequently result from this disease.

957. With respect to the further cure of this disease, it is almost in two cases only that hæmorrhoidal persons call for the assistance of the physician. The one is when the affection is accompanied with much pain; and of this there are two cases, according as the pain happens to attend the ex-

ternal or internal piles.

958. The pain of the external piles arises especially when a considerable protrusion of the rectum has happened; and when, continuing unreduced, it is strangled by the constriction of the sphincter; while at the same time no bleeding happens, to take off the swelling of the protruded portion of the intestine. Sometimes an inflammation supervenes, and greatly aggravates the pain. To relieve the pain in this case, emollient fomentations and poultices are sometimes of service; but a more effectual relief is to be obtained by applying leeches to the tumid parts.

959. The other case in which hæmorrhoidal persons seek assistance, is that of excessive bleeding. Upon the opinion so generally received of this discharge being salutary, and from the observation, that upon the discharge occurring, persons have sometimes found relief from various disorders, the most part of persons liable to it are ready to let it go too far; and indeed the Stahlians will not allow it to be a disease, unless when it has actually gone to excess. I am, however, well persuaded, that this flux ought always to be

cured as soon as possible.

960. When the disease occurs as a purely topical affection, there can be no doubt of the propriety of this rule; and even when it has occurred as a critical discharge in the case of a particular disease, yet when this disease shall have been entirely cured and removed, the preventing any return of the hamorrhois seems to be both safe and proper.

961. It is only when the disease arises from a plethoric state of the body, and from a stagnation of blood in the hypochondriac region, or when, though originally topical, the disease, by frequent repetition, has become habitual, and has thereby acquired a connection with the whole system, that any doubt can arise as to the safety of curing it entirely. Even in these cases, however, I apprehend it will be always proper to moderate the bleeding; lest by its continuance or repetition, the plethoric state of the body, and the particular determination of the blood into the hæmorrhoidal vessels be increased, and the recurrence of the disease, with all its inconveniences and danger, be too much favoured.

962. Further, even in the cases stated (961.), in so far as the plethoric state of the body, and the tendency to that state can be obviated and removed, this is always to be diligently attempted; and if it can be executed with success, the flux may be entirely suppressed.

963. The Stahlian opinion, that the hæmorrhoidal flux is only in excess when it occasions great debility, or a leucophlegmatia, is by no means just; and it appears to me, that the smallest approach towards *producing* either of these, should be considered as an excess, which ought to be prevented from going farther.

964. In all cases therefore of excess, or of any approach towards it, and particularly when the disease depends upon a prolapsus ani (951.), I am of opinion, that astringents, both internal and external, may be safely and properly employed; not indeed to induce an immediate and total suppression, but to moderate the hæmorrhagy, and by degrees to suppress it altogether, while at the same time measures are taken for removing the necessity of its recurrence.

965. When the circumstances (946.) marking a connection between the hæmorrhoidal affection, and the state of the stomach occur, the measures necessary are the same as in the case of atonic gout.

CHAP. VI.

OF THE MENORRHAGIA, OR THE IMMODERATE FLOW OF THE MENSES.

G. XXXVIII. Menorrhagia.—Dorsi, lumborum, ventris, parturientium instar, dolores; menstruorum copiosior, vel sanguinis e vaginâ præter ordinem fluxus.

Sp. 1. Menorrhagia (rubra) cruenta in non gravidis nec puerperis.

Sp. 2. Menorrhagia (abortus) cruenta in gravidis.

Sp. 3. Menorrhagia (lochialis) cruenta in puerperis.

Sp. 4. Menorrhagia (vitiorum) cruenta ex vitio locali.

Sp. 5. Menorrhagia (alba) serosa sine vitio locali in non gravidis.

Sp. 6. Menorrhagia (Nabothi) serosa in gravidis.

966. Blood discharged from the vagina may proceed from different sources in the internal parts; but I here mean to treat of those discharges only, in which the blood may be presumed to flow from the same sources that the menses in their natural state proceed from; and which discharges alone are those properly comprehended under the present title. The title of Mætrorrhagia or hæmorrhagia uteri, might comprehend a great deal more.

967. The menorrhagia may be considered as of two kinds; either as it happens to pregnant and lying-in women, or as it happens to women neither pregnant nor having recently born children. The first kind, as connected with the circumstances of pregnancy and child-bearing, (which are not to be treated of in the present course,) I am not to con-

sider here, but shall confine myself to the second kind of menorrhagia only.

968. The flow of the menses is considered as immoderate, when it recurs more frequently, when it continues longer, or when during the ordinary continuance it is more abundant than is usual with the same person at other times.

969. As the most part of women are liable to some inequality with respect to the period, the duration, and the quantity of their menses; so it is not every inequality in these respects that is to be considered as a disease; but only those deviations, which are excessive in degree, which are permanent, and which induce a manifest state of debility.

970. The circumstances (968, 969.) are those which chiefly constitute the menorrhagia: but it is proper to observe, that although I allow the frequency, duration and quantity of the menses to be judged of by what is usual with the same individual at other times; yet there is, in these particulars, so much uniformity observable in the whole of the sex, that in any individual in whom there occurs a considerable deviation from the common measure, such a deviation, if constantly recurring, may be considered as at least approaching to a morbid state, and as requiring most of the precautions which I shall hereafter mention as necessary to be attended to by those who are actually in such a state.

971. However we may determine with respect to the circumstances 968. 969, it must still be allowed, that the immoderate flow of the menses is especially to be determined by those symptoms affecting other functions of the body, which accompany and follow the discharge.

When a larger flow than usual of the menses has been preceded by headach, giddiness, or dyspuca, and has been ushered in by a cold stage, and is attended with much pain of the back and loins, with a frequent pulse, heat and thirst, it may be considered as preternaturally large.

972. When, in consequence of the circumstances 968,—

971, and the repetition of these, the face becomes pale; the pulse grows weak; an unusual debility is felt in exercise; the breathing is hurried by moderate exercise; when, also, the back becomes pained from any continuance in an erect posture; when the extremities become frequently cold; and when in the evening the feet appear affected with ædematous swelling; we may from these symptoms certainly conclude, that the flow of the menses has been immoderate, and has already induced a dangerous state of debility.

973. The debility thus induced, does often discover itself also by affections of the stomach, as anorexia and other symptoms of dyspepsia; by a palpitation of the heart, and frequent faintings; by a weakness of mind liable to strong emotions from slight causes, especially when suddenly presented.

974. That flow of the menses, which is attended with barrenness in married women, may be generally considered as immoderate and morbid.

975. Generally, also, that flow of the menses may be considered as immoderate, which is preceded and followed by a leucorrhœa.

976. I treat of menorrhagia here as an active hæmorrhagy, because I consider menstruation, in its natural state, to be always of that kind: and although there should be cases of menorrhagia which might be considered as purely passive, it appears to me that they cannot be so properly treated of in any other place.

977. The menorrhagia (968. et seq.) has for its proximate cause either the hæmorrhagic effort of the uterine vessels preternaturally increased, or a preternatural laxity of the extremities of the uterine arteries, the hæmorrhagic effort remaining as in the natural state.

978. The remote causes of the menorrhagia may be, 1st. Those which increase the plethoric state of the uterine vessels; such as a full and nourishing diet, much strong liquor,

and frequent intoxication. 2dly, Those which determine the blood more copiously and forcibly into the uterine vessels; as violent strainings of the whole body; violent shocks of the whole body from falls; violent strokes or contusions on the lower belly; violent exercise, particularly in dancing; and violent passions of the mind. 3dly, Those which particularly irritate the vessels of the uterus; as excess in venery; the exercise of venery in the time of menstruation; a costive habit, giving occasion to violent straining at stool; and cold applied to the feet. 4thly, Those which have forcibly overstrained the extremities of the uterine vessels; as frequent abortions; frequent child-bearing without nursing; and difficult tedious labours. Or, lastly, Those which induce a general laxity; as living much in warm chambers, and drinking much of warm enervating liquors, such as tea and coffee.

979. The effects of the menorrhagia are pointed out in 972. 973, where I have mentioned the several symptoms accompanying the disease; and from these the consequences to be apprehended will also readily appear.

980. The treatment and cure of the menorrhagia must be different, according to the different causes of the disease.

In all cases, the first attention ought to be given to avoiding the remote causes, whenever that can be done; and by that means the disease may be often entirely avoided.

When the remote causes cannot be avoided, or when the avoiding them has been neglected, and therefore a copious menstruation has come on, it should be moderated, as much as possible, by abstaining from all exercise, either at the coming on or during the continuance of the menstruation; by avoiding even an erect posture as much as possible; by shunning external heat, and therefore warm chambers and soft beds; by using a light and cool diet; by taking cold drink, at least as far as former habits will allow; by avoiding ve-

nery; by obviating costiveness, or removing it by laxatives that give little stimulus.

The sex are commonly negligent, either in avoiding the remote causes, or in moderating the first beginnings of this disease. It is by such neglect that it so frequently becomes violent, and of difficult cure; and the frequent repetition of a copious menstruation may be considered as a cause of great

laxity in the extreme vessels of the uterus.

981. When the coming on of the menstruation has been preceded by some disorder in other parts of the body, and is accompanied with pains of the back, resembling parturient pains, together with febrile symptoms, and when at the same time the flow seems to be copious, then a bleeding at the arm may be proper, but it is not often necessary; and it will in most cases be sufficient to employ, with great attention and diligence, those means for moderating the discharge which have been mentioned in the last paragraph.

982. When the immoderate flow of the menses shall seem to be owing to a laxity of the vessels of the uterus, as may be concluded from the general debility and laxity of the person's habit; from the remote causes that have occasioned the disease (978.); from the absence of the symptoms which denote increased action of the vessels of the uterus (971.); from the frequent recurrence of the disease; and particularly from this, that in the intervals of menstruation the person is liable to a leucorrhœa; then in such case the disease is to be treated, not only by employing all the means mentioned in 980. for moderating the hæmorrhagy, but also by avoiding all irritation, every irritation having the greater effect in proportion as the vessels have been more lax and yielding. If, in such a case of laxity, it shall appear that some degree of irritation concurs, opiates may be employed to moderate the discharge; but in using these, much caution is requisite.

If, notwithstanding these measures having been taken, the discharge shall prove very large, astringents both external

and internal may be employed. In such cases, may small doses of emetics be of service?

983. When the menorrhagia depends on the laxity of the uterine vessels, it will be proper, in the intervals of menstruation, to employ tonic remedies; as cold bathing and chalybeates. The exercises of gestation, also, may be very useful, both for strengthening the whole system, and for taking off the determination of the blood to the internal parts.

984. The remedies mentioned in these two last paragraphs may be employed in all cases of menorrhagia, from whatever cause it may have proceeded, if the disease shall have already induced a considerable degree of debility in the body.

CHAP. VII.

. OF THE LEUCORRHŒA, FLUOR ALBUS, OR WHITES.

985. Every serous or puriform discharge from the vagina, may be, and has been comprehended under one or other of the appellations I have prefixed to this chapter. Such discharges, however, may be various, and may proceed from various sources, not yet well ascertained; but I confine myself here to treat of that discharge alone which may be presumed to proceed from the same vessels, which, in their natural state, pour out the menses.

986. I conclude a discharge from the vagina to be of this kind; 1. From its happening to women who are subject to an immoderate flow of the menses, are liable to this from causes weakening the vessels of the uterus. 2. From its appearing chiefly, and often only, a little before, as well as immediately after, the flow of the menses. 3. From the flow of the menses being diminished, in proportion as the leucorrhœa is increased. 4. From the leucorrhœa continuing af-

ter the menses have entirely ceased, and with some appearance of its observing a periodical recurrence. 5. From the leucorrhoea being accompanied with the effects of the menorrhagia (972, 973.). 6. From the discharge having been neither preceded by, nor accompanied with, symptoms of any topical affections of the uterus. 7. From the leucorrhoea not having appeared soon after communication with a person who might be suspected of communicating infection, and from the first appearance of the disease not being accompanied with an inflammatory affection of the pudenda.

987. The appearance of the matter discharged in the leucorrhœa, is very various with respect to consistence and colour; but from these appearances, it is not always possible to determine concerning its nature, or the particular source

from whence it proceeds.

988. The leucorrhœa, of which I am to treat, as ascertained by the several circumstances (986.), seems to proceed from the same causes as that species of menorrhagia which I suppose to arise from the laxity of the extreme vessels of the uterus. It accordingly often follows or accompanies such a menorrhagia; but though the leucorrhœa depends chiefly upon the laxity mentioned, it may have proceeded from irritations inducing that laxity, and seems to be always increased by any irritations applied to the uterus.

989. Some authors have alleged, that a variety of circumstances in other parts of the body may have a share in bringing on and in continuing this affection of the uterus now under consideration: but I cannot discover the reality of those causes; and it seems to me, that this leucorrhoen, excepting in so far as it depends upon a general debility of the system, is always primarily an affection of the uterus; and the affections of other parts of the body which may happen to accompany it are for the most part to be considered as effects, rather than as causes.

990. The effects of the leucorrheea are much the same

with those of menorrhagia; inducing a general debility, and, in particular, a debility in the functions of the stomach. If, however, the leucorrhœa be moderate, and be not accompanied with any considerable degree of menorrhagia, it may often continue long without inducing any great degree of debility, and it is only when the discharge has been very copious as well as constant, that its effects in that way are very remarkable.

991. But, even when its effects upon the whole body are not very considerable, it may still be supposed to weaken the genital system; and it seems sufficiently probable that this discharge may often have a share in occasioning barrenness.

992. The matter discharged in the leucorrhœa, is at first generally mild; but after some continuance of the disease, it sometimes becomes acrid, and by irritating, or perhaps eroding the surfaces over which it passes, induces various painful disorders.

993. As I have supposed that the leucorrhœa proceeds from the same causes as that species of menorrhagia which is chiefly owing to a laxity of the uterine vessels, it must be treated, and the cure attempted, by the same means as delivered in 892. for the cure of menorrhagia, and with less reserve in respect of the use of astringents.

994. As the leucorrhoa generally depends upon a great loss of tone in the vessels of the uterus, the disease has been relieved, and sometimes cured, by certain stimulant medicines, which are commonly determined to the urinary passages, and from the vicinity of these are often communicated to the uterus. Such, for example, are cantharides, turpentine, and other balsams of a similar nature.

CHAP. VIII.

OF THE AMENORRHEA, OR INTERRUPTION OF THE MENSTRUAL FLUX.

- G. CXXVI. AMENORRHŒA.—Menses tempore quo fluere solent, vel solito parciores, vel non omnino fluentes, citra graviditatem.
- Sp. 1. Amenorrhæa (emansionis) in puberibus quibus post fluxus tempus solitum, menses non jam prodierint, et cum simul variæ affectiones morbidæ adsint.
- Sp. 2. Amenorrhæa (suppressionis) in adultis, quibus menses, quæ jam fluere solebant, suppressæ sunt.
- Sp. 3. Amenorrhæa (difficilis) in qua menses parcius et cum dolore fluunt.
- G. XLVI. Chlorosis.—Dyspepsia vel rei non esculentæ desiderium; cutis pallor vel decoloratio; venæ minus plenæ, corporis tumor mollis; asthenia; palpitatio; menstruorum retentio.
- 995. Whatever, in a system of methodical nosology, may be the fittest place for the amenorrhoea, it cannot be improper to treat of it here as an object of practice, immediately after having considered the menorrhagia.
- 996. The interruption of the menstrual flux is to be considered as of two different kinds; the one being when the menses do not begin to flow at that period of life at which they usually appear; and the other being that when, after they have repeatedly taken place for some time, they do, from other causes than conception, cease to return at their usual periods: The former of these cases is named the retention, and the latter the suppression of the menses.

997. As the flowing of the menses depends upon the force of the uterine arteries impelling the blood into their extremities, and opening these so as to pour out red blood, so the interruption of the menstrual flux must depend, either upon the want of due force in the action of the uterine arteries, or upon some preternatural resistance in their extremities. The former I suppose to be the most usual cause of retention, the latter the most common cause of suppression; and of each of these I shall now treat more particularly.

998. The retention of the menses, the emansio mensium of Latin writers, is not to be considered as a disease merely from the menses not flowing at that period which is usual with most other women. This period is so different in different women, that no time can be precisely assigned as proper to the sex in general. In this climate, the menses usually appear about the age of fourteen; but in many they appear more early, and in many not till the sixteenth year: in which last case it is often without any disorder being thereby occasioned. It is not therefore from the age of the person that the retention is to be considered as a disease; and it is only to be considered as such, when, about the time the menses usually appear, some disorders arise in other parts of the body which may be imputed to their retention; being such as, when arising at this period, are known from experience to be removed by the flowing of the menses.

999. These disorders are, a sluggishness, and frequent sense of lassitude and debility, with various symptoms of dyspepsia; and sometimes with a preternatural appetite. At the same time the face loses its vivid colour, becomes pale, and sometimes of a yellowish hue; the whole body becomes pale and flaccid; and the feet, and perhaps also a great part of the body, become affected with ædematous swelling. The breathing is hurried by any quick or laborious motion of the body, and the heart is liable to palpitation and syncope. A

headach sometimes occurs; but more certainly pains of the back, loins, and haunches.

1000. These symptoms, when occurring in a high degree, constitute the *chlorosis* of authors, hardly ever appearing separate from the retention of the menses; and, attending to these symptoms, the cause of this retention may, I think, be perceived.

These symptoms manifestly shew a considerable laxity and flaccidity of the whole system; and therefore give reason to conclude, that the retention of the menses accompanying them, is owing to a weaker action of the vessels of the uterus; which therefore do not impel the blood into their extremities with a force sufficient to open these and pour out blood by them.

1001. How it happens that at a certain period of life a flaccidity of the system arises in young women not originally affected with any such weakness or laxity, and of which, but a little time before, they had given no indication, may be difficult to explain; but I would attempt it in this way.

As a certain state of the ovaria in females, prepares and disposes them to the exercise of venery, about the very period at which the menses first appear, it is to be presumed that the state of the ovaria and that of the uterine vessels are in some measure connected together; and as generally symptoms of a change in the state of the former appear before those of the latter, it may be inferred, that the state of the ovaria has a great share in exciting the action of the uterine vessels, and producing the menstrual flux. But, analogous to what happens in the male sex, it may be presumed, that in females a certain state of the genitals is necessary to give tone and tension to the whole system; and therefore that, if the stimulus arising from the genitals be wanting, the whole system may fall into a torpid and flaccid state, and from thence the chlorosis and retention of the menses may arise.

1002. It appears to me, therefore, that the retention of the menses is to be referred to a certain state or affection of the ovaria: but what is precisely the nature of this affection, or what are the causes of it, I will not pretend to explain; nor can I explain in what manner that primary cause of retention is to be removed. In this, therefore, as in many other cases, where we cannot assign the proximate cause of diseases, our indications of cure must be formed for obviating and removing the morbid effects or symptoms which appear.

1003. The effects, as has been said in 1000, consist in a general flaccidity of the system, and consequently in a weaker action of the vessels of the uterus; so that this debility may be considered as the more immediate cause of the retention. This, therefore, is to be cured by restoring the tone of the system in general, and by exciting the action of the uterine vessels in particular.

1004. The tone of the system in general is to be restored by exercise, and, in the beginning of the disease, by cold bathing. At the same time, tonic medicines may be employed; and of these the chalybeates have been chiefly recommended.

1005. The action of the vessels of the uterus may be excited:

1st, By determining the blood into them more copiously; which is to be done by determining the blood into the descending aorta, by purging, by the exercise of walking, by friction, and by warm bathing of the lower extremities. It is also probable that the blood may be determined more copiously into the hypogastric arteries which go to the uterus, by a compression of the iliacs; but the trials of this kind hitherto made have seldom succeeded.

1006. 2dly, The action of the uterine vessels may be excited by stimulants applied to them. Thus, those purgatives which particularly stimulate the intestinum rectum, may al-

so prove stimulant to the uterine vessels connected with those of the rectum. The exercise of venery certainly proves a stimulus to the vessels of the uterus; and therefore may be useful when, with propriety, it can be employed. The various medicines recommended as stimulants of the uterine vessels, under the title of Emmenagogues, have never appeared to me to be effectual; and I cannot perceive that any of them are possessed of a specific power in this respect. Mercury, as an universal stimulant, may act upon the uterus, but cannot be very safely employed in chlorotic persons. One of the most powerful means of exciting the action of the vessels in every part of the system is, the electrical shock; and it has often been employed with success for exciting the vessels of the uterus.

1007. The remedies (1003.—1006.) now mentioned, are those adapted to the retention of the menses; and I am next to consider the case of suppression. In entering upon this, I must observe, that every interruption of the flux, after it has once taken place, is not to be considered as a case of suppression; for the flux, upon its first appearance, is not always immediately established in its regular course; and therefore, if an interruption happen soon after the first appearance, or even in the course of the first, or perhaps second year after, it may often be considered as a case of retention, especially when the disease appears with the symptoms peculiar to that state.

1008. Those which may be properly considered as cases of suppression, are such as occur after the flux has been for some time established in its regular course, and in which the interruption cannot be referred to the causes of retention (1002. 1003.), but must be imputed to some resistance in the extremities of the vessels of the uterus. Accordingly, we often find the suppression induced by cold, fear, and other causes which may produce a constriction of these extreme vessels. Some physicians have supposed an obstructing len-

tor of the fluids to occasion the resistance now mentioned; but this is purely hypothetical, without any proper evidence of the fact; and it is, besides, from other considerations, improbable.

1009. There are indeed some cases of suppression that seem to depend upon a general debility of the system, and consequently of the vessels of the uterus. But in such cases, the suppression always appears as symptomatic of other affections, and is therefore not to be considered here.

1010. The idiopathic cases of suppression (1008.) seldom continue long without being attended with various symptoms or disorders in different parts of the body; very commonly arising from the blood which should have passed by the uterus being determined more copiously into other parts, and very often with such force as to produce hæmorrhagies in these. Hence hæmorrhagies from the nose, lungs, stomach, and other parts, have appeared in consequence of suppressed menses. Besides these, there are commonly hysteric and dyspeptic symptoms produced by the same cause; and frequently colic pains, with a bound belly.

1011. In the idiopathic cases of suppression (1008.), the indication of cure is to remove the constriction affecting the extreme vessels of the uterus; and for this purpose, the chief remedy is warm bathing applied to the region of the uterus. This, however, is not always effectual, and I do not know of any other remedy adapted to the indication. Besides this, we have perhaps no other means of removing the constriction in fault, but that of increasing the action and force of the vessels of the uterus, so as thereby to overcome the resistance or constriction of their extremities. This, therefore, is to be attempted by the same remedies in the case of suppression, as those prescribed in the cases of retention (1004.—1006.). The tonics, however, and cold bathing (1004.) seem to be less properly adapted to the cases of suppression, and have appeared to me of ambiguous effect.

1012. It commonly happens in the cases of suppression, that though the menses do not flow at their usual periods, there are often at those periods some marks of an effort having a tendency to produce the discharge. It is therefore at those times especially, when the efforts of the system are concurring, that we ought to employ the remedies for curing a suppression; and it is commonly fruitless to employ them at other times, unless they be such as require some continuance in their use to produce their effects.

1013. Nearly similar to the cases of suppression are those cases in which the menses flow after longer intervals and in lesser quantity than usual; and when these cases are attended with the disorders in the system (1010), they are to be cured by the same remedies as the cases of entire sup-

pression.

1014. It may be proper in this place to take notice of the dysmenorrhæa, or cases of menstruation in which the menses seem to flow with difficulty, and are accompanied with much pain in the back, loins, and lower belly. We impute this disorder partly to some weaker action of the vessels of the uterus, and partly, perhaps more especially, to a spasm of its extreme vessels. We have commonly found the disease relieved by employing some of the remedies of suppression immediately before the approach of the period, and at the same time employing opiates.

CHAP, IX.

OF SYMPTOMATIC HÆMORRHAGIES.

1015. I HAVE thought it very improper in this work to treat of those morbid affections that are almost always sympto-

matic of other more primary diseases; and this for several reasons, particularly because it introduces a great deal of confusion in directing practice, and leads physicians to employ palliative measures only. I shall here, however, deviate a little from my general plan, to make some reflections upon symptomatic hæmorrhagies.

1016. The hæmorrhagies of this kind that especially deserve our notice, are the Hæmatemesis, or Vomiting of Blood; and the Hæmaturia, or the Voiding of Blood from the urinary passage. Upon these I am here to make some remarks; because, though they are very generally symptomatic, it is possible they may be sometimes primary and idiopathic affections; and because they have been treated of as primary diseases in almost every system of the practice of physic.

Sect. I .- Of the Hamatemesis or Vomiting of Blood.

1017. I have said above (in 845.) in what manner blood thrown out from the mouth may be known to proceed from the stomach, and not from the lungs: but it may be proper here to say more particularly, that this may be certainly known: When the blood is brought up manifestly by vomiting without any coughing; when this vomiting has been preceded by some sense of weight, anxiety, and pain, in the region of the stomach; when the blood brought up is of a black and grumous appearance, and when it is manifestly mixed with other contents of the stomach; we can seldom have any doubt of the source from whence the blood proceeds, and therefore of the existence of the disease we treat of.

1018. We must allow it to be possible that a plethoric state of the body from general causes may be accompanied with causes of a peculiar determination and afflux of blood to the stomach, so as to occasion an hæmorrhagy there, and thence a vomiting of blood; and in such a case this appear-

ance might be considered as a primary disease. But the history of diseases in the records of physic afford little foundation for such a supposition; and, on the contrary, the whole of the instances of a vomiting of blood which have been recorded, are pretty manifestly symptomatic of a more primary affection.

Of such symptomatic vomitings of blood, the chief instan-

ces are the following.

1019. One of the most frequent is that which appears in consequence of a suppression of an evacuation of blood which had been for some time before established in another part of the body, particularly that of the menstrual flux in women.

1020. There are instances of a vomiting of blood happening from the *retention* of the menses; but such instances are very uncommon, as a retention of the menses rarely happens in consequence of, or even with, a plethoric state of the body; and as rarely does it produce that, or the hæ-

morrhagy in question.

There are instances of a vomiting of blood happening to pregnant women; that might therefore also be imputed to the suppression of the menses, which happens to women in that state. There have indeed been more instances of this than of the former case; but the latter are still very rare; for although the blood which used to flow monthly before impregnation is, upon this taking place, retained, it is commonly so entirely employed in dilating the uterine vessels, and in the growth of the fœtus, that it is seldom found to produce a plethoric state of the body, requiring a vicarious outlet.

The vomiting of blood, therefore, that is vicarious of the menstrual flux, is that which commonly and almost only happens upon a suppression of that flux, after it had been for some time established.

1021. When such a suppression happens, it may be supposed to operate by inducing a plethoric state of the whole

body, and thereby occasioning hæmorrhagy from other parts of it; and hæmorrhagies from many different parts of the body have been observed by physicians as occurring in consequence of the suppression we speak of. It is, however, the great variety of such hæmorrhagies that leads me to think, that with the plethoric state of the whole body there must be always some peculiar circumstances in the part from which the blood flows, that determines its afflux to that particular, often singularly odd, part; and therefore, that such hæmorrhagies may, from these circumstances, occur without any considerable plethora at the same time prevailing in the whole system.

1022. It is to be observed, that if we are to expect an hæmorrhagy in consequence of a suppression of the menses inducing a plethoric state of the system, we should expect especially an hæmoptysis, or hæmorrhagy from the lungs, as a plethora might be expected to show its effects especially there; and accordingly, upon occasion of suppressed menses, that hæmorrhagy occurs more frequently than any other; but even this, when it does happen, neither in its circumstances nor its consequences, leads us to suppose, that at the same time any considerable or dangerous plethora prevails in the body.

1023. These considerations (in 1021, 1022.) will, I apprehend, apply to our present subject; and I would therefore allege, that a hæmatemesis may perhaps depend upon particular circumstances of the stomach determining an afflux of blood to that organ, and may therefore occur without any considerable or dangerous plethora prevailing in the system. What are the circumstances of the stomach, which, upon the occasion mentioned, may determine an afflux of blood to it, I cannot certainly or clearly explain, but presume that it depends upon the connection and consent which we know to subsist between the uterus and the whole of the alimen-

tary canal, and especially that principal part of it the stomach.

1024. From these reflections we may, I think, draw the following conclusions.

I. That the hæmatemesis we speak of is hardly ever a dan-

gerous disease.

II. That it will hardly ever require the remedies suited to the cure of active hæmorrhagy; and at least that it will require these only in those unusual cases in which there appear strong marks of a general plethora, and in which the vomiting of blood appears to be considerably active, very profuse, and frequently recurring.

III. That a vomiting of blood from suppressed menses, ought seldom to prevent the use of these remedies of amenorrhæa, which might be improper in the case of an active idio-

pathic hæmorrhagy.

1025. Another case of symptomatic hæmatemesis quite analogous to that already mentioned, is the hæmatemesis following, and seemingly depending upon, the suppression of an hæmorrhoidal flux, which had been established and frequent for some time before.

This may perhaps be explained by a general plethoric state induced by such a suppression, and indeed some degree of a plethoric state must in such a case be supposed to take place: but that supposition alone will not explain the whole of the case; for a general plethora would lead us to expect an hæmoptysis (1022.) rather than an hæmatemesis; and there is therefore something still wanting, as in the former case, to explain the particular determination to the stomach.

Whether such an explanation can be got from the connection between the different parts of the sanguiferous vessels of the alimentary canal, or from the connection of the whole of these vessels with the vena portarum, I shall not venture to determine. But in the mean time I imagine, that the explanation required is rather to be obtained from that connection of the stomach with the hæmorrhoidal affection that I have taken notice of in 946.

1026. However we may explain the hæmatemesis occasioned by a suppression of the hæmorrhois, the considerations in 1021. 1022. will apply here as in the analogous case of hæmatemesis from suppressed menses; and will therefore allow us also to conclude here, that the disease we now treat of will seldom be dangerous, and will seldom require the same remedies that idiopathic and active hæmorrhagy does.

1027. The cases of hæmatemesis already mentioned, may be properly supposed to be hæmorrhagies of the arterial kind; but it is probable that the stomach is also liable to hæmorrhagies of the venous kind, (768.)

In the records of physic there are many instances of vomitings of blood, which were accompanied with a tumefied spleen, which had compressed the vas breve, and thereby prevented the free return of venous blood from the stomach. How such an interruption of the venous blood may occasion an hæmorrhagy from either the extremities of the veins themselves, or from the extremities of their correspondent arteries, we have explained above in 769; and the histories of tumefied spleens compressing the vasa brevia afford an excellent illustration and confirmation of our doctrine on that subject, and render it sufficiently probable that vomitings of blood often arise from such a cause.

1028. It is also possible, that an obstruction of the liver resisting the free motion of the blood in the vena portarum, may sometimes interrupt the free return of the venous blood from the vessels of the stomach, and thereby occasion a vomiting of blood; but the instances of this are neither so frequent nor so clearly explained as those of the former case.

1029. Beside these cases depending on the state of the livol. 1. 2 A

ver or spleen, it is very probable that other hæmorrhagies of the stomach are frequently of the venous kind.

The disease named by Sauvages Melæna, and by other writers commonly termed the Morbus Niger, (772.), consisting in an evacuation either by vomiting or by stool, and sometimes in both ways, of a black and grumous blood, can hardly be otherwise occasioned, than by a venous hæmorrhagy from some part of the internal surface of the alimentary canal.

It is indeed, possible, that the bile may sometimes put on a black and viscid appearance, and give a real foundation for the appellation of an Atra Bilis; but it is certain, that instances of this are very rare; and it is highly probable, that what gave occasion to the notion of an atra bilis among the ancients, was truly the appearance of blood poured into the alimentary canal in the manner I have mentioned; and which appearance, we know, the blood always puts on when it has stagnated there for any length of time. I suppose it is now generally thought, that Boerhaave's notion of such a matter existing in the mass of blood is without any foundation; whilst by dissections in modern times, it appears very clearly, that the morbus niger presenting such an appearance of blood, always depends upon the effusion and stagnation I have mentioned.

1030. From this account of the melæna it will appear, that vomitings of blood may arise in consequence of blood being poured out in the manner I have mentioned, either into the cavity of the stomach itself, or into the superior portions of the intestines, from whence matters often pass into the stomach.

1031. Both in the case of the melæna, and in the analogous cases from affections of the spleen or liver, it will appear, that the vomitings of blood occurring must be considered as symptomatic affections, not at all to be treated as a primary active hamorrhagy, but by remedies, if any such be known, that may resolve the primary obstructions.

1032. I believe I have now mentioned almost the whole of the causes producing a hæmatemesis; and certainly the causes mentioned are those which most commonly gave occasion to that symptom. Possibly, however, there may be some other causes of it, such as that singular one mentioned by Sauvages of an aneurism of the aorta bursting into the stomach; and it is possible, that some diseases of other contiguous parts, which have become closely adhering to the stomach, may sometimes, by a rupture into the cavity of the stomach, pour blood into it, which is afterwards rejected by vomiting. It is possible also, that abscesses and ulcerations of the stomach itself may sometimes pour blood into its cavity to be thrown up by vomiting.

I did not think it necessary, among the symptomatic vomitings of blood, to enumerate those from external violence, nor, what is analogous to it, that which arises from violent straining to vomit; which last, however, is much more rare than might be expected. In either of these cases the nature of the disease cannot be doubtful, and the management of it will be readily understood from what has been delivered above with respect to moderating and restraining hæmorrhagy in general.

Sect. II.—Of the Hæmaturia, or the Voiding of Blood from the Urinary Passage.

1033. It is alleged, that an hæmaturia has occurred without any other symptom of an affection of the kidneys or urinary passages being present at the same time; and as this happened to plethoric persons, and recurred at fixed periods, such a case has been supposed to be an instance of idiopathic hæmaturia, and of the nature of those active hæmorrhagies I have treated of before.

1034. I cannot positively deny the existence of such a

case; but must observe, that there are very few instances of such upon the records of physic; that none have ever occurred to my observation, or to that of my friends; and that the observations adduced may be fallacious, as I have frequently observed an hæmaturia without symptoms of other affection of the kidney or urinary passages being, for the time, present; whilst, however, fits of nephralgia calculosa having, before or soon after, happened, rendered it to me sufficiently probable, that the hæmaturia was owing to a wound made by a stone present in some part of the urinary passages.

1035. The existence of an idiopathic hæmaturia is further improbable, as a general plethora is more likely to produce an hæmoptysis (1022.), and as we do not well know of any circumstances which might determine more particularly to the kidneys. An idiopathic hæmaturia, therefore, must certainly be a rare occurrence; and instances of symptomatic

affections of the same kind are very frequent.

1036. One of the most frequent is, that hæmaturia which attends the nephralgia calculosa, and seems manifestly to be owing to a stone wounding the internal surface of the pelvis of the kidney or of the ureter. In such cases, the blood discharged with the urine is sometimes of a pretty florid colour, but for the most part is of a dark hue; the whole of it is sometimes diffused or dissolved, and therefore entirely suspended in the urine; but if it is in any large quantity, a portion of it is deposited to the bottom of the vessel containing the voided blood and urine. On different occasions, the blood voided puts on different appearances. If the blood poured out in the kidney has happened to stagnate for some time in the ureters or bladder, it is sometimes coagulated, and the coagulated part is afterwards broken down into a grumous mass of a black or dark colour, and therefore gives the same colour to the urine voided; or if the quantity of broken down blood is small, it gives only a brownish urine resembling coffee. It sometimes also happens, that the blood stagnating and coagulating in the ureters takes the form of these vessels, and is therefore voided under the appearance of a worm; and if the coagulated blood happens to have, as it may sometimes have, the gluten separated from the red globules, these worm-like appearances have their external surface whitish, and the whole seemingly forming a tube containing a red liquor. I have sometimes observed the blood which had seemingly been coagulated in the ureter, come away in an almost dry state, resembling the half-burnt wick of a candle.

1037. These are the several appearances of the blood voided in the hæmaturia calculosa, when it proceeds especially from the kidneys or ureter; and many of the same appearances are observed when the blood proceeds only from the bladder when a stone is lodged there; but the attending symptoms will commonly point out the different seat of the disease.

In one case, when a quantity of blood from the kidney or ureter is coagulated in the bladder, and is therefore difficultly thrown out from this, the pain and uneasiness on such an occasion may appear chiefly to be in the bladder, though it contains no stone; but the antecedent symptoms will commonly discover the nature of the disease.

1038. In any of the cases of the hæmaturia calculosa, it will hardly be necessary to employ the remedies suited to an active hæmorrhagy. It will be proper only to employ the regimen fit for moderating hæmorrhagy in general, and particularly here to avoid every thing or circumstance that might irritate the kidneys or ureters. Of such cases of irritation there is none more frequent or more considerable than the presence of hardened fæces in the colon, and these therefore are to be frequently removed, by the frequent use of gentle laxatives.

1039. The hæmaturia calculosa may be properly consi-

dered as a case of the hæmaturia violenta: and therefore I subjoin to that the other instances of hæmaturia from external violence; such as that from external contusion on the region of the kidney, and that from the violent or long continued exercise of the muscles incumbent on the kidneys. An instance of the latter cause occurs especially in riding.

1040. It may also be considered as a case of the hæmaturia violenta, when the disease occurs in consequence of the taking in of certain acrid substances, which pass again especially by the urinary passages; and, by inflaming and swelling the neck of the bladder, bring on a rupture of the overdistended blood-vessels, and give occasion to a bloody urine. The most noted instance of this is in the effect of cantharides in a certain quantity, any way introduced into the body. And possibly some other acrids may have the same effect.

1041. Beside these most frequent instances of hæmaturia, which cannot be considered as idiopathic hæmorrhagies, there are some other instances of hæmaturia mentioned by authors, that are still however manifestly symptomatic; such as a discharge of blood from the urinary passages, in consequence of a suppression of either the menstrual or hæmorrhoidal flux. These may be considered as analogous to the hæmatemesis produced by the like causes; and the several reflections made above on that subject, will, I think, apply here, and particularly the conclusions formed in 1024. Instances, however, of either of these cases, and especially of the first, have been extremely rare.

1042. Of such symptomatic hæmaturia there is, however, one instance deserving notice, and that is, when a suppression of the hæmorrhoidal flux, either by a communication of vessels, or merely by the vicinity of parts, occasions a determination of the blood into the vessels of the neck of the bladder, which, in consequence of a rixis or anastomosis, pour out blood to be voided either with or without the urine.

This case is what has been named the Hæmorrhoides Vesicæ; and with some propriety, when it is manifestly an evacuation vicarious of what had before been usually made from the rectum. With respect to the management of the hæmorrhoides vesicæ, I would apply the whole of the doctrines that I have delivered above, with respect to the cure of the proper hæmorrhoidal affection.

1043. There remains still to be mentioned one other instance of symptomatic hæmaturia, which is that which happens in the case of confluent and putrid small-pox, as well as in several other instances of putrid diseases. The blood, in such cases, may be presumed to come from the kidneys; and I apprehend that it comes from thence in consequence of that fluidity which is always produced in the blood approaching to a putrid state. Such hæmaturia, therefore, is not to be considered as a symptom of any affection of the kidneys, but merely as a mark of the putrescent state of the blood.

1044. In certain diseases the urine is discharged of such a deep red colour, as to give a suspicion of its being tinged by blood present in it; and this has given occasion to Sauvages, amongst the other species of hæmaturia, to mark the hæmaturia spuria, and the hæmaturia lateritia; both which, however, he supposes to be without any blood present in the urine. In many cases it is of importance, in ascertaining the nature of a disease, to determine whether the red colour of urine be from blood present in it, or from a certain state of the salts and oils which are always in greater or less proportion constituent parts of the urine; and the question may be commonly determined by the following considerations.

It has been observed above, that when any considerable quantity of blood is voided with the urine, there is always a portion of it deposited at the bottom of the vessel containing the voided blood and urine; and in such a case there will

be no doubt in attributing the colour of the urine floating above, to some part of the blood diffused in it. The question, therefore, with respect to the presence of blood in the urine, can only occur when no such deposition as I have mentioned appears; and when the blood that may be supposed to be present is dissolved or diffused, and therefore entirely suspended in the urine. In this case the presence of blood may be commonly known, 1st, By the colour which blood gives, different from any urine without blood that I have ever seen; and I think a little experience will enable most persons to make this distinction. 2dly, By this, that the presence of blood always diminishes the transparency of the urine with which it is mixed: and it is very seldom that urine, though very high coloured, loses its transparency; at least this hardly ever appears, if the urine is examined when recently voided. 3dly, When urine has blood mixed with it, it tinges a piece of linen dipped into it with a red colour, which the highest coloured urine without blood never does. 4thly, High-coloured urine without blood, upon cooling, and remaining at rest in a vessel, almost always deposites a lateritious sediment; and if upon any occasion bloody urine should deposite a sediment that may be of a portion of the blood formerly diffused in it, the difference however may be discerned by this, that the sediment deposited by urine without blood, upon the urine's being again heated, will be entirely redissolved, which will not happen to any sediment from blood. Lastly, We know no state of urine without blood, which shows any portion of it coagulable by a heat equal to that of boiling water; but blood diffused in urine is still coagulable by such a heat: and by this test, therefore, the presence of blood in urine may be commonly ascertain-

BOOK V.

OF PROFLUVIA, OR FLUXES, WITH PYREXIA.

ORD. V. PROFLUVIA.

Pyrexia cum excretione auctà, naturaliter non sanguineà.

INTRODUCTION.

1045. Former nosologists have established a class of diseases under the title of Fluxes or Profluvia: but, as in this class they have brought together a great number of diseases, which have nothing in common, excepting the single circumstance of an increased discharge of fluids, and which also are, in other respects, very different from one another; I have avoided so improper an arrangement, and have distributed most of the diseases comprehended in such a class by the nosologists, into places more natural and proper for them. I have, indeed, still employed here the general title; but I confine it to such fluxes only, as are constantly attended with pyrexia, and which therefore necessarily belong to the class of diseases of which I am now treating.

Of the fluxes which may be considered as being very constantly febrile diseases, there are only two, the catarrh and dysentery; and of these therefore I now proceed to treat.

CHAP. I.

OF THE CATARRH.

G. XXXIX. CATARRHUS.—Pyrexia sæpe contagiosa; muci, ex glandulis membranæ narium, faucium, vel bronchiorum, excretio, aucta; saltem hujus excretionis molimina.

Sp. 1. Catarrhus a frigore.

Sp. 2. Catarrhus a contagio.

1046. The catarrh is an increased excretion of mucus from the mucous membrane of the nose, fauces and bronchiæ, at-

tended with pyrexia.

Practical writers and nosologists have distinguished the disease by different appellations, according as it happens to affect those different parts of the mucous membrane, the one part more or less than the other: But I am of opinion, that the disease, although affecting different parts, is always of the same nature, and proceeds from the same cause. Very commonly indeed those different parts are affected at the same time; and therefore there can be little room for the distinction mentioned.

The disease has been frequently treated of under the title of Tussis, or Cough; and a cough, indeed, always attends the chief form of catarrh, that is, the increased excretion from the bronchiæ: but a cough is so often a symptom of many other affections, which are very different from one another, that it is improperly employed as a generic title.

1047. The remote cause of catarrh is, most commonly, cold applied to the body. This application of cold producing catarrh, can in many cases be distinctly observed; and I believe it would always be so, were men acquainted with, and attentive to, the circumstances which determine cold to act upon the body. See 94.—96.

From the same paragraphs we may learn what in some

persons gives a predisposition to catarrh.

1048. The disease, of which I am now to treat, generally begins with some difficulty of breathing through the nose, and with a sense of some fulness stopping up that passage. This is also often attended with some dull pain and a sense of weight in the forehead, as well as some stiffness in the motion of the eyes. These feelings, sometimes at their first beginning, and always soon after, are attended with the distillation from the nose, and sometimes from the eyes, of a thin fluid, which is often found to be somewhat acrid, both by its taste, and by its fretting the parts over which it passes.

1049. These symptoms constitute the coryza and gravedo of medical authors, and are commonly attended with a sense of lassitude over the whole body. Sometimes cold shiverings are felt, at least the body is more sensible than usual to the coldness of the air; and with all this the pulse becomes, especially in the evenings, more frequent than ordinary.

1050. These symptoms seldom continue long before they are accompanied with some hoarseness, and a sense of roughness and soreness in the trachea, and with some difficulty of breathing, attributed to a sense of straitness of the chest, and attended with a cough which seems to arise from some irritation felt at the glottis. The cough is generally at first dry, occasioning pains about the chest, and more especially in the breast. Sometimes, together with these symptoms, pains resembling those of the rheumatism, are felt in several parts of the body, particularly about the neck and head. While these symptoms take place, the appetite is impaired, some thirst arises, and a general lassitude is felt over all the body.

1051. These symptoms (1048.—1050.) mark the violence and height of the disease; which, however, does not commonly continue long. By degrees the cough becomes attended with a copious excretion of mucus, which is at first thin, but gradually becoming thicker, is brought up with less frequent and less laborious coughing. The hoarseness and soreness of the trachea likewise going off, the febrile symptoms abating, the cough becoming less frequent, and with less expectoration, the disease soon after ceases altogether.

1052. Such is generally the course of this disease, which is commonly neither tedious nor dangerous; but, upon some occasions, it is in both respects otherwise. A person affected with catarrh seems to be more than usually liable to be affected by cold air; and in that condition, if exposed to cold, the disease, which seemed to be yielding, is often brought back with greater violence than before; and is rendered not only more tedious than otherwise it would have been, but also more dangerous by the supervening of other diseases.

1053. Some degree of the cynanche tonsillaris often accompanies the catarrh; and, when the latter is aggravated by a fresh application of cold, the cynanche also becomes more violent and dangerous, in consequence of the cough which is present at the same time.

1054. When a catarrh has been occasioned by a violent cause; when it has been aggravated by improper management; and especially when it has been rendered more violent by fresh and repeated applications of cold, it often passes into a pneumonic inflammation, attended with the utmost danger.

1055. Unless, however, such accidents as those of 1052.—1054. happen, a catarrh, in sound persons not far advanced in life is, I think, always a slight disease, and attended with little danger. But in persons of a phthisical disposition, a catarrh may readily produce a hæmoptysis, or perhaps form

tubercles in the lungs; and more certainly, in persons who have tubercles already formed in the lungs, an accidental catarrh may occasion the inflammation of these tubercles, and in consequence produce a phthisis pulmonalis.

dangerous disease. Many persons, as they advance in life, and especially after they have arrived at old age, have the natural mucus of the lungs poured out in greater quantity, and consequently requiring a frequent expectoration. If therefore a catarrh happen to such persons, and increase the afflux of fluids to the lungs, with some degree of inflammation, it may produce the peripneumonia notha, which in such cases is very often fatal. See 376.—382.

1057. The proximate cause of catarrh seems to be an increased afflux of fluids to the mucous membrane of the nose, fauces, and bronchiæ, along with some degree of inflammation affecting these parts. The latter circumstance is confirmed by this, that in the case of catarrh, the blood drawn from a vein commonly exhibits the same inflammatory crust which appears in the case of phlegmasiæ.

1058. The application of cold which occasions a catarrh probably operates by diminishing the perspiration usually made by the skin, and which is therefore determined to the mucous membrane of the parts above mentioned. As a part of the weight which the body daily loses by insensible evacuation, is owing to an exhalation from the lungs, there is probably a connection between this exhalation and the cutaneous perspiration, so that the one may be increased in proportion as the other is diminished; and therefore we may understand how the diminution of cutaneous perspiration, in consequence of the application of cold, may increase the afflux of fluids to the lungs, and thereby produce a catarrh.

1059. There are some observations made by Dr James Keil, which may seem to render this matter doubtful; but there is a fallacy in his observations. The evident effects of

cold in producing coryza, leave the matter in general without doubt; and there are several other circumstances which show a connection between the lungs and the surface of the

body.

1060. Whether from the suppression of perspiration, a catarrh be produced merely by an increased afflux of fluids, or whether the matter of perspiration be at the same time determined to the mucous glands, and there excite a particular irritation, may be uncertain; but the latter supposition is sufficiently probable.

1061. Although, in the case of a common catarrh, which is in many instances sporadic, it may be doubtful whether any morbific matter be applied to the mucous glands; it is, however, certain, that the symptoms of a catarrh do frequently depend upon such a matter being applied to these glands, as appears from the case of measles, chincough, and especially from the frequent occurrence of contagious and epidemical catarrh.

1062. The mention of this last leads me to observe, that there are two species of catarrh, as I have marked in my Synopsis of Nosology. One of these, as I suppose, is produced by cold alone, as has been explained above; and the other seems manifestly to be produced by a specific conta-

gion.

Of such contagious catarrhs, I have pointed out in the Synopsis many instances occurring from the 14th century down to the present day. In all these instances the phenomena have been much the same; and the disease has always been particularly remarkable in this, that it has been the most widely and generally spreading epidemic known. It has seldom appeared in any one country of Europe, without appearing successively in every other part of it; and in some instances, it has been even transferred to America, and has been spread over that continent, so far as we have had opportunities of being informed.

the same symptoms as those mentioned 1048.—1050. It seems often to come on in consequence of the application of cold. It comes on with more cold shivering than the catarrh arising from cold alone, and sooner shows febrile symptoms, and these likewise in a more considerable degree. Accordingly, it more speedily runs its course, which is commonly finished in a few days. It sometimes terminates by a spontaneous sweat; and this, in some persons, produces a miliary eruption. It is, however, the febrile state of this disease especially, that is finished in a few days; for the cough, and other catarrhal symptoms, do frequently continue longer; and often, when they appear to be going off, they are renewed by any fresh application of cold.

1064. Considering the number of persons who are affected with catarrh, of either the one species or the other, and escape from it quickly without any hurt, it may be allowed to be a disease very free from danger: but it is not always to be considered as such; for in some persons it is accompanied with pneumonic inflammation. In the phthisically disposed, it often accelerates the coming on of phthisis; and in elderly persons it frequently proves fatal in the manner explained above, (1054, and 1056).

1065. The cure of catarrh is nearly the same, whether it proceed from cold or contagion; with this difference, that in the latter case remedies are commonly more necessary than in the former.

In the cases of a moderate disease, it is commonly sufficient to avoid cold, and to abstain from animal food for some days; or perhaps to lie a-bed, and, by taking frequently of some mild and diluent drink a little warmed, to promote a very gentle sweat; and after these to take care to return very gradually on to the use of the free air.

1066. When the disease is more violent, not only the an-

tiphlogistic regimen must be exactly observed, but various remedies also become necessary.

To take off the phlogistic diathesis which always attends this disease, blood-letting in a larger or smaller quantity, and repeated according as the symptoms shall require, is the

proper remedy.

For restoring the determination of the fluids to the surface of the body, and at the same time for expediting the secretion of mucus in the lungs, which may take off the inflammation of its membrane, vomiting is the most effectual means.

For the latter purpose, it has been supposed, that squills, gum-ammoniac, the volatile alkali, and some other medicines, might be useful; but their efficacy has never appeared to me to be considerable; and, if squills have ever been very useful, it seems to have been rather by their emetic, than by their expectorant powers.

When the inflammatory affections of the lungs seem to be considerable, it is proper, besides blood-letting, to apply

blisters on some part of the thorax.

As a cough is often the most troublesome circumstance of this disease, so demulcents may be employed to alleviate it. See 373.

But, after the inflammatory symptoms have much abated, if the cough should still continue, opiates afford the most effectual means of relieving it; and, in the circumstances just now mentioned, they may be very safely employed. See 375.

After the inflammatory and febrile states of this disease are almost entirely gone, the most effectual means of discussing all remains of the catarrhal affection is by some exercise of gestation diligently employed.

CHAP. II.

OF THE DYSENTERY.

G. XL. DYSENTERIA.—Pyrexia contagiosa; dejectiones frequentes, nucosæ, vel sanguinolentæ, retentis plerumque fæcibus alvinis; tormina; tenesmus.

1067. The dysentery is a disease in which the patient has frequent stools, accompanied with much griping, and followed by a tenesmus. The stools, though frequent, are generally in small quantity; and the matter voided is chiefly mucus, sometimes mixed with blood. At the same time, the natural fæces seldom appear; and, when they do, it is generally in a compact and hardened form.

1068. This disease occurs especially in summer and autumn, at the same time with autumnal intermittent and remittent fevers; and with these it is sometimes combined or complicated.

1069. The disease comes on sometimes with cold shiverings, and other symptoms of pyrexia; but more commonly the symptoms of the topical affection appear first. The belly is costive, with an unusual flatulence in the bowels. Sometimes, though more rarely, some degree of diarrhæa is the first appearance. In most cases the disease begins with griping, and a frequent inclination to go to stool. In indulging this, little is voided; but some tenesmus attends it. By degrees the stools become more frequent, the griping more severe, and the tenesmus more considerable. Along with

these symptoms there is a loss of appetite; and frequently sickness, nausea, and vomiting, also affecting the patient. At the same time there is always more or less of pyrexia present, which is sometimes of the remittent kind, and observes a tertian period. Sometimes the fever is manifestly inflammatory, and very often of a putrid kind. These febrile states continue to accompany the disease during its whole course, especially when it terminates soon in a fatal manner. In other cases, the febrile state almost entirely disappears, while the proper dysenteric symptoms remain for a long time after.

1070. In the course of the disease, whether of a shorter or longer duration, the matter voided by stool is very va-Sometimes it is merely a mucous matter, without ' any blood, exhibiting that disease which Dr Roederer has named the morbus mucosus, and others the dysenteria alba. For the most part, however, the mucus discharged is more or less mixed with blood. This sometimes appears only in streaks amongst the mucus; but at other times is more copious, tinging the whole of the matter discharged; and upon some occasions a pure and unmixed blood is voided in considerable quantity. In other respects, the matter voided is variously changed in colour and consistence, and is commonly of a strong and unusually fœtid odour. It is probable that sometimes a genuine pus is voided, and frequently a putrid sanies, proceeding from gangrenous parts. There are very often mixed with the liquid matter, some films of a membranous appearance, and frequently some small masses of a seemingly sebaceous matter.

1071. While the stools consisting of these various matters are, in many instances, exceedingly frequent, it is seldom that natural fæces appear in them; and when they do appear, it is, as I have mentioned, in the form of scybala, that is, in somewhat hardened, separate balls. When these are voided, whether by the efforts of nature, or as solicited

by art, they procure a remission of all the symptoms, and more especially of the frequent stools, griping, and tenesmus.

1072. Accompanied with these circumstances, the disease proceeds for a longer or shorter time. When the pyrexia attending it is of a violent inflammatory kind, and more especially when it is of a very putrid nature, the disease often terminates fatally in a very few days, with all the marks of a supervening gangrene. When the febrile state is more moderate, or disappears altogether, the disease is often protracted for weeks, and even for months; but even then, after a various duration, it often terminates fatally, and generally in consequence of a return and considerable aggravation of the inflammatory and putrid states. In some cases, the disease ceases spontaneously; the frequency of stools, the griping, and tenesmus gradually diminishing, while natural stools return. In other cases, the disease, with moderate symptoms, continues long, and ends in a diarrhœa, sometimes accompanied with lienteric symptoms.

1073. The remote causes of this disease have been variously judged of. It generally arises in summer or autumn, after considerable heats have prevailed for some time, and especially after very warm and at the same time very dry states of the weather; and the disease is much more frequent in warm than in cooler climates. It happens, therefore, in the same circumstances and seasons which considerably affect the state of the bile in the human body; but as the cholera is often without any dysenteric symptoms, and copious discharges of bile have been found to relieve the symptoms of dysentery, it is difficult to determine what connection the disease has with the state of the bile.

1074. It has been observed, that the effluvia from very putrid animal substances readily affect the alimentary canal; and upon some occasions they certainly produce a diarrhoa:

but whether they ever produce a genuine dysentery, I have not been able to learn with certainty.

1075. The dysentery does often manifestly arise from the application of cold, but the disease is always contagious; and by the propagation of such contagion, independent of cold, or other exciting causes, it becomes epidemic in camps and other places. It is therefore to be doubted, if the application of cold does ever produce the disease, unless where the specific contagion has been previously received into the body: And, upon the whole, it is probable, that a specific contagion is to be considered as always the remote cause of this disease.

permanent nature, and only shows its effects in certain circumstances which render it active, or if it be occasionally produced, I cannot determine. Neither, if the latter supposition be received, can I say by what means it may be generated. As little do we know any thing of its nature, considered in itself; or at most this only, that, in common with many other contagions, it appears to be commonly of a putrid nature, and capable of inducing a putrescent tendency in the human body. This, however, does not at all explain its peculiar power in inducing those symptoms which properly and essentially constitute the disease of dysentery, (1067.).

1077. Of these symptoms, the proximate cause is still obscure. The common opinion has been, that the disease depends upon an acrid matter received into, or generated in the intestines themselves, exciting their peristaltic motion, and thereby producing the frequent stools which occur in this disease. But this supposition cannot be admitted; for, in all the instances known of acrid substances applied to the intestines and producing frequent stools, they at the same time produce copious stools, as might be expected from acrid substances applied to any length of the intestines.

This, however, is not the case in dysentery; in which the stools, however frequent, are generally in very small quantity, and such as may be supposed to proceed from the lower parts of the rectum only. With respect to the superior portions of the intestines, and particularly those of the colon, it is probable they are under a preternatural and considerable degree of constriction: for, as I have observed above, the natural fæces are seldom voided, and when they are, it is in a form which gives reason to suppose they have been long retained in the cells of the colon, and consequently that the colon had been affected with a preternatural constriction. This is confirmed by almost all the dissections which have been made of the bodies of dysenteric patients, in which, when gangrene had not entirely destroyed the texture and form of the parts, considerable portions of the great guts have been found affected with a very considerable constriction.

1078. I apprehend, therefore, that the proximate cause of dysentery, or at least the chief part of the proximate cause, consists in a preternatural constriction of the colon, occasioning at the same time those spasmodic efforts which are felt in severe gripings, and which efforts, propagated downwards to the rectum, occasion there the frequent mucous stools and tenesmus. But, whether this explanation shall be admitted or not, it will still remain certain, that hardened fæces retained in the colon are the cause of the griping, frequent stools, and tenesmus: for the evacuation of these fæces, whether by nature or by art, gives relief from the symptoms mentioned; and it will be more fully and usefully confirmed by this, that the most immediate and successful cure of dysentery is obtained by an early and constant attention to the preventing the constriction, and the frequent stagnation of fæces in the colon.

1079. In this manner I have endeavoured to ascertain the proximate cause of dysentery, and therefore to point out al-

so the principal part of the cure, which, from want of the proper view of the nature of the disease, seems to have been in several respects fluctuating and undetermined among practitioners.

1080. The most eminent of our late practitioners, and of greatest experience in this disease, seem to be of opinion, that the disease is to be cured most effectually by purging assiduously employed. The means may be various; but the most gentle laxatives are usually sufficient; and as they must be frequently repeated, the most gentle are the most safe, the more especially as an inflammatory state so frequently accompanies the disease. Whatever laxatives produce an evacuation of natural fæces, and a consequent remission of the symptoms, will be sufficient to effectuate the cure. But if gentle laxatives shall not produce the evacuation now mentioned, some more powerful medicines must be employed: and I have found nothing more proper or convenient than tartar-emetic, given in small doses, and at such intervals as may determine their operation to be chiefly by stool. Rhubarb, so frequently employed, is in several respects amongst the most improper purgatives.

1081. Vomiting has been held a principal remedy in this disease; and may be usefully employed in the beginning of it, with a view to both the state of the stomach and of the fever: but it is not necessary to repeat it often; and unless the emetics employed operate also by stool, they are of little service. Ipecacuanha seems to possess no specific power; and it proves only useful when so managed as to operate chiefly by stool.

1082. For relieving the constriction of the colon, and evacuating the retained fæces, glysters may sometimes be useful; but they are seldom so effectual as laxatives given by the mouth; and acrid glysters, if they be not effectual in evacuating the colon, may prove hurtful by stimulating the rectum too much.

1083. The frequent and severe griping attending this disease, leads almost necessarily to the use of opiates, and they are very effectual for the purpose of relieving from the gripes; but by occasioning an interruption of the action of the small guts, they favour the constriction of the colon, and thereby sometimes aggravate the disease: and if at the same time the use of them supersede in any measure the employing of purgatives, it commonly does much mischief; I believe it indeed to be only the neglect of purging that renders the use of opiates very necessary.

1084. When the gripes are both frequent and severe, they may sometimes be relieved by the employment of a semicupium, or by a fomentation of the abdomen, continued for some time. In the same case, the pains may be relieved, and, as I think, the constriction of the colon may be taken off, by blisters applied to the lower belly.

1085. At the beginning of this disease, when the fever is any way considerable, blood-letting, in patients of tolerable vigour, may be proper and necessary; and, when the pulse is full and hard, with other symptoms of an inflammatory disposition, blood-letting ought to be repeated. But, as the fever attending dysentery is often of a putrid kind, or does, in the course of the disease, become soon of that nature, blood-letting must be employed with great caution.

1086. From the account now given of the nature of this disease, it will be sufficiently obvious, that the use of astringents in the beginning of it must be absolutely pernicious.

1087. Whether an acrid matter be the original cause of this disease, may be uncertain: but from the indigestion and the stagnation of fluids in the stomach, which attend the disease, it may be presumed, that some acrid matters are constantly present in the stomach and intestines, and therefore that demulcents may be always usefully employed. At the same time, from this consideration, that mild oily matters thrown into the intestines in considerable quantity always

prove laxative, I am of opinion that the oleaginous demulcents are the most useful.

1088. As this disease is so often of an inflammatory or of a putrid nature, it is evident that the diet employed in it should be vegetable and acescent. Milk in its entire state is of doubtful quality in many cases; but some portion of the cream is often allowable, and whey is always proper.

In the first stages of the disease, the sweat and subacid fruits are allowable, and even proper. It is in the more advanced stages only, that any morbid acidity seems to prevail in the stomach, and to require some reserve in the use of acescents. At the beginning of the disease, absorbents seem to be superfluous; and by their astringent and septic powers they may be hurtful.

1089. When this disease is complicated with an intermittent fever, and is protracted from that circumstance chiefly, it is to be treated as an intermittent, by administering the Peruvian bark, which, however, in the earlier periods of the disease, is hardly to be admitted.

APPENDIX.

NOTES AND ILLUSTRATIONS.

SECT. 8.—SEE further on the observations on sect. 235. for an examination of the question, Whether fevers be essential and primary, or merely symptomatic of local inflammation?

Chap. II. Sect. 33.—It were needless, at the present day, to make any formal observations on Dr Cullen's theory of the proximate cause of fever. That theory has been long completely exploded; and, indeed, no one was better acquainted with its imperfections than Dr Cullen himself. Such as it is, however, the merit of it hardly belongs to him. The following quotation will shew, that the origin of the spasmodic theory of fever, as of most of the opinions of the Solidists, is to be sought for in the writings of Dr Hoffman:

"Constitutâ sic verâ actionum, quæ in statu sano secundum naturam, ordinem et regulam fiunt, causâ, motu
nempe æquabili solidorum et fluidorum; facillimum jam
rerit in veram tantæ turbationis ac læsionis omnium actionum in febribus causam inquirere, quæ vicissim vix alia
set, quam inordinatus, irregularis, et inæquabilis solidorum

" et fluidorum motus, cujus naturam, ut paulo curatius de-" scribamus, necessarium non minus quam utile erit. Te-" nendum itaque est, in omni febrili accessione, duplicis ge-"neris in solidis et fluidis motum inordinatum observari; " alter, qui prior et ordine præcedit, statim ab initio febris fit, « et in partibus externis atque extremis et ubi minimorum vascu-" lorum copia adest, maxime in integumentis corporis, præsertim "cute viget. Increscit nempe in solidis hisce et nervosis " partibus, quæ minima tantum vasa admittunt, vis contrac-" tilis, quâ fibræ in se redeunt et coarctantur, atque vascula " et tubuli subnexi angustantur et comprimuntur, ut fluido-" rum per hæc ipsa fluxus et refluxus sufflaminetur. Aucta " hæc motûs contractorii species, quæ Græcis spasmus dici-"tur, non modo universam cutem et omnes partes externas " occupat, sed etiam inæquabili harum partium motione red-" ditâ, ingentem mutationem fluidis quoque corporis nostri "infert; siquidem impedito libero per angustiora vasa "transitu, affluens humor reprimitur ad partes interiores, " ut earum vasa majorem, quam par est, sanguinis copiam " recipiant, et sic ab inæquabili solidorum motione motus " quoque sanguinis et fluidorum fiat inæqualis. Is enim no-" bis æquabilis fluidorum dicitur motus, quando fluida non " majorem impetum faciunt in unam, quam in alteram par-" tem; et vis solidorum contractilis æquabilis dicitur, quan-" do premit æqualiter liquida in omnibus partibus. Proinde "quandocunque partes externæ præter naturam spasmo " constringuntur, sanguis repellitur ad interiora, et extrema " detumescunt, refrigescunt, urgent, horrent, vasa disparent, " asperitates exsurgunt, et perspiratio liquidi per cutis cola-" torium impeditur, fluida vera cum impetu ad interiora de-" lata cephalalgiam, inquietudinem, phantasiæ perturba-" tionem, anxietatem et gravitatem pectoris, virium oppres-" sionem, pulsum frequentem, debilem et parvum, dolorem " dorsi, intumescentiam abdominis a flatibus et angorem " gignunt. Spasticum hunc partium solidarum motum, qui "a superficie corporis ad interiora convertitur, atque in in"termittentibus clare conspicuus est, sensim paulatimque
"alter contrarius in solidis et fluidis partibus subsequitur; quo
"cor cum vasis interioribus, vigore motus systaltici aucto, cum
"impetu quodam et vehementia sanguinem omnisque generis
"fluida ad exteriora, et superficiem corporis urget et pellit.
"Hinc sub eodem calor totius corporis valde increscit, pul"sus fit magnus et celer, habitus corporis tumet et rubet,
"humidique fit appetentia. Atque hic duplex sibique op"positus motus formalem febris rationem continet, inque
"ejus consideratione vera et rationalis febrium theoria con"sistit."

Hoffman, vol. vi. page 11, Dissertatio de verâ Motuum Febrilium indole ac sede.

The above extract manifestly contains the whole of the Cullenian theory, that part excepted which depends on the supposed vis medicatrix natura.

107. et seq. - On the doctrine of critical days, Dr Wilson Philip's Treatise on Fever may be advantageously consulted, for a general account of the doctrines of the ancients, and the belief of the moderns on the subject of the critical days. Since the practice in fever became more bold and energetic, these critical days have been less attended to, and indeed they are now hardly mentioned by practical writers. One of the best pieces of evidence on this subject was published here some years ago, under the title of a Treatise on the Efficacy of Blood-Letting in the Epidemic Fever of Edinburgh, by my lamented friend, Dr Benjamin Welsh. As superintendent of the fever hospital, his opportunities were excellent, and the results of his experience are stated in the best of all forms, the tabular. Of 743 cases, 467 terminated on critical, 181 on non-critical days: in 95, the precise day could not be known. The chief critical days were the 5th,

7th, 9th, 11th, 14th: 129 terminated on the 7th alone. () If the non-critical days, the chief were the 4th, 6th, 8th, 10th. These were original fevers. Of 133 cases of relapse, 108 terminated on critical, 23 on non-critical days: in 2, the precise day could not be ascertained. The greatest number happened on the 3d and the 5th.

Of 34 cases which terminated fatally, 10 were on critical, 22 on non-critical days, 2 were unknown. With this statement of Dr Welsh's, my own experience, (for at that time I too was in the Royal Infirmary,) completely agrees: and I well remember that we used to look for critical evacuations with a good deal of confidence on the critical days, and always preferred to make large bleedings on the evening immediately preceding such days.

126. et seq.—The indications of cure laid down by Dr Cullen are still the best that can be followed; but some observations fall naturally to be made on the circumstances to which they are applicable. It is evident, from the perusal of the whole chapter on the cure of fever, and, indeed, it was the consequence of his nosological arrangement, that Dr Cullen had his attention directed to typhoid, rather than to inflammatory fevers, and thought the debility of more consequence in a practical point of view, than the symptoms of over-excitement. Hence his cautious reserve in the employment of a rigid antiphlogistic regimen, and, in particular, his manifest aversion to blood-letting. But it is the discovery of very recent times, in consequence of a vast experience, in all climates, and under all circumstances, that the immense majority of fevers are really inflammatory in their nature, not merely at their commencement, but often through their whole course; and that the debility of the latter stages, when it does supervene, is not an essential part of the fever, but rather the effect of previous excitement not properly subdued. On this idea has been founded the present practice of copious blood-letting, both generally and topically, the cold affusion of Dr Currie, and the liberal use of tartaremetic by the Italian physicians.

The cautions which Dr Cullen had given on the subject of bleeding, the doctrines of Dr Brown, and the opinions of several eminent physicians at the close of the last century, had led to the almost general idea of the debility of the vital powers in the fevers of this country, generally termed typhoid; and, accordingly, twenty years ago, the practice was either very feebly antiphlogistic, or decidedly stimulating. When I commenced the study of physic in 1815, bark, opium, but especially wine in very large quantities, were generally employed in the Royal Infirmary here; and cases were deemed interesting in proportion to the quantity that had been used of these stimuli. In the years 1817-18-19, we had prevailing here, to a great degree, the fever, which, from the Continent, had spread over the whole island; and we soon had abundant opportunity to observe the more favourable termination of those cases which were treated on the purely antiphlogistic plan. About the same period, more attention was paid to the ingenious essay of Dr Clutterbuck: Dr Armstrong, Dr Mills, Dr Graham, published their reports: the medical officers of the army and navy communicated the results of their experience in various countries; so that, finally, as if by general consent, the doctrines of debility were every where exploded, and the inflammatory nature of fever, in all its stages, as generally recognised. Under a treatment precisely similar to what would be pursued in a case of pneumonia or enteritis, fevers were often found to be completely cut short; to terminate suddenly by some critical evacuation; and always the symptoms were rendered milder and more favourable. Thus, after a large bleeding of twenty-four or thirty ounces, the pulse, if before full and hard, will become slow and soft:

if small and feeble, it will become strong and large. The skin often becomes, during the flowing of the blood, soft and moist; pains are relieved; delirium subsides. If costiveness be present, from the inflammatory affection of the mucous membrane of the small intestines, a bleeding is often the best of all purgatives; and the diarrhœa, which depends on the inflammation of the mucous membrane of the colon, is best checked by the same remedy. Nor are its effects less remarkable in relieving morbid heat of surface, allaying thirst, inducing sleep, &c. To render venesection as effectual as possible, it should be practised during the evening exacerbation, from a large orifice, and with the patient in the recumbent posture; for the effects of bleeding are generally in proportion to the quantity drawn; of course, every other part of the antiphlogistic regimen is to be pursued, and particularly what relates to cold drink, and the topical application of leeches. As far as I am able to judge, no period of the fever is too late for blood-letting, provided the pulse be sharp, and the heat of the surface steadily above the natural standard.

When relapses occur, and they are very readily induced by over-exertion, or stimulant food, they are to be treated precisely as the primary fever; and one large bleeding will commonly cut them short.

See Welsh on the Efficacy of Blood-letting in the Epidemic Fever of Edinburgh.

A very extensive experience has now confirmed the practical benefits of the cold affusion in the way recommended by the elegant Dr Currie. Cold water, or vinegar and water, or salt and water, may be poured on the patient, with the utmost safety, whenever the heat of the body is ascertained, by the thermometer, to be steadily above the natural standard. It gives great relief to the feelings of the patient, and for a time removes entirely the febrile feeling.

Its effects, however, are rarely permanent, and I have seldom seen it cut short a fever, as venesection often does.

See Currie's Medical Reports.

In the different publications of Tommasini we find an account of the present most popular notions of fever in Italy. These have taken their origin in certain modifications of the Brunonian theory, proposed originally by Rasori of Milan, and extended and improved by his pupil Tommasini. According to Brown, all living bodies are endowed with a property termed Excitability, or the power of being affected by stimuli; and health or disease results according as the stimuli and excitability are or are not in due proportion to each other. The effect of the application of stimuli, such as heat, air, light, food, medicines, &c. Brown denominated Excitement. If too great a degree of stimulus be applied, sthenic diseases ensue; if too little, debility is induced. Debility he considered of two kinds, one direct, the other indirect. The former depends on a want of proper excitement; the latter on the application of too much stimulus, by which the excitability is exhausted.

As the proportion between the stimuli and the excitability of the system may be overthrown either generally or partially, so are diseases either general or local. In the former, Brown described the condition of the body in general by the term diathesis, which, according to circumstances, is either sthenic or asthenic. In the sthenic diathesis, there is too great an excitement from the application of stimuli in too great quantity: in the asthenic, the debility is either direct or indirect. It is direct when too little stimulus is applied; it is indirect when the excitability is lessened or exhausted by the application of too much. In diseases belonging to the sthenic diathesis, the cure is to be attempted by antiphlogistic medicines; in diseases of direct debility, stimulants are to be employed; and in those of indirect debility

also, stimulants are to be used, only beginning with those that are powerful, and gradually diminishing their strength.

This theory of Dr Brown, by which the great majority of diseases were considered to be owing to indirect debility, had no great success in this country, but had an immense influence on practice both in Germany and Italy; and in compliance with it, fevers (diseases of indirect debility according to Brown) were treated by wine, opium, æther, &c. The present Italian theory is called, by antithesis, the doctrine of the Contro-stimolanti. This term requires some explanation. Dr Brown thought that all substances, or nearly all, were more or less stimulant. Rasori and Tommasini, on the other hand, believe that many are truly sedative, or counter-stimulant. They believe, also, that diseases depend either on a sthenic or asthenic diathesis, but they do not recognise the indirect debility of Brown. They have transferred to the class of sthenic the diseases of indirect debility of the Brunonians; and they treat them by counter. stimulants, as they denominate tartar-emetic, digitalis, squill, ipecacuan, nitre, vegetable acids, hemlock, hyoscyamus, nux vomica, gamboge, preparations of zinc and lead, besides using blood-letting, both general and local. Tommasini has no certain symptoms by which he can discover whether any one case belongs to the sthenic or asthenic diathesis; this he ascertains only by the experience of the juvantia and lædentia.

As to the use of tartar-emetic, he employs this substance very freely, and in much larger quantities than we are accustomed to in this country; quantities that we should hardly believe but for the concurring testimony of the unbiassed and excellent Laennec. One, two, or three grains are given at first, dissolved in a small quantity of fluid, such as barley water. The first one excites vomiting, and perhaps two or three stools. When the patient recovers from the effects of this, generally in two or three hours, another smaller dose is

given him, dissolved as before in about a couple of ounces of liquid, and this he retains commonly. The doses are repeated from time to time according as the patient bears them; and thus a large quantity of tartar-emetic may be given. Seventy grains have been taken in the course of twenty-four hours, and, what is remarkable, often without any considerable evacuation, and with little or no nausea. The effects of this emetic beverage are, to lower the pulse, remove delirium, relieve thirst, and lessen the violence of the general inflammatory symptoms. This practice of the Italians may probably be very advantageously adopted in many circumstances of fever where we are unwilling to use blood-letting, and it certainly deserves a fair trial. On the general merits of their theory, I do not care to pronounce an opinion. Practically, it differs little from that which has long reigned in Britain; and perhaps Dr Cullen himself is the original author of the exhibition of tartar-emetic in at least frequently repeated doses.

232. One of the most valuable improvements in the treatment of intermittent fevers, is the substitution of Quinine, and its preparations, for the bark in substance. Dr Duncan jun. in a careful analysis of the different sorts of bark, discovered a matter differing, in some respects, from all previously known vegetable principles, and which, therefore, he called Cinchonin; a discovery confirmed, but not followed up, by Dr Gomez of Lisbon. MM. Pelletier and Caventou, the ingenious and scientific Pharmaciens of Paris, submitted various sorts of bark to the same kind of reagents, by means of which they had discovered Veratrine in the Veratrum Album and Colchicum, Emetine in Ipecacuanha, and Strychnine in Nux Vomica: they detected the Cihchonin of Duncan and Gomez, and found it to be a new alkali; while, at the same time, they established the existence of a second new alkali, which they denominated Quinine.

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They are obtained by dissolving the alcoholic extract of bark in boiling very dilute muriatic acid, to which an excess of magnesia is to be added: the precipitate found is then to be washed with cold water and dried: boiling alcohol will then separate the alkalis, which will crystallize on cooling. The cinchonin and quinine may be separated from each other by slight modifications of the process. Though they exist together in all the varieties of the bark, yet they are found in different proportions to each other. Cinchonin is most abundant in the Cinchona condaminea, while the Cinchona cordifolia furnishes the largest quantity of quinine. In their pure state they are very sparingly soluble in water, and therefore, probably, have but a feeble action when taken into the stomach. In the state of sulphate or acetate, they are far more powerful, so that it is in this form that they have been employed; the cinchonin, however, less extensively than the quinine. The sulphate of quinine may be used in all cases to which bark is applicable. It is suited to all forms of intermittent affections, and is an excellent bitter tonic in dyspepsia, &c. And, besides, it has this great advantage over bark, that it may be given when the latter will not remain in the stomach, while it is much more certain and far more powerful in its operation. The reports which we have of its efficacy in intermittents are quite satisfactory. In a dose of eight, ten, or twelve grains twice a-day for an adult, it generally cuts short the fever in a day or two. Should it fail, the antiphlogistic regimen must be pursued for some time before the medicine can be resumed. It may be given in wine, syrup, or combined with some bitter tincture. As a tonic, the doses must be smaller, from two to four grains twice or thrice a-day, in some mild liquid. When long continued, it occasions in the system febrile irritation, and symptoms manifestly depending on inflammation of the mucous membrane of the stomach. These are quickly removed by leaving off the sulphate, and drinking plentifully of mild diluent fluids. It is hardly ever vomited, and I have never seen it pass off by stool. We must undoubtedly consider the sulphate of quinine as the best and safest remedy against intermittents we at present possess.

235. Phenomena of Inflammation.—The four symptoms enumerated by Dr Cullen are universally regarded as the characteristics of inflammation, when it occurs near to the surface of the body; but they are by no means generally applicable to all the different textures. Of these symptoms, redness is the most invariable; for, as it depends on the enlargement of blood-vessels, without which inflammation cannot exist, it therefore must necessarily be present, more or less, in all inflamed parts. Accordingly, increased vascularity, or redness, is one of the most general tests of inflammation; the hue greatly differs in different textures, and it requires a skilful pathologist to determine what is really inflammatory redness, and what is merely vascular congestion. In some textures, the redness is fixed and settled as in the serous membranes: in the cuticular mucous membranes and in the skin, it is exceedingly fugitive. Pain is more severe in proportion to the violence of the inflammation, in parts of low organization, as the bones and the fibrous tissues, and also in the serous membranes generally: it is comparatively less in mucous membranes, and in the substance of the compound organs. Swelling occurs according to the kind of texture, and according as the inflammation is acute or chronic. In parts into the composition of which cellular texture enters, swelling readily takes place, on account of the facilities afforded to the distention of the blood-vessels, and the deposition of new matters; but inflammation is present in the brain without swelling, and, in the acute inflammation of the serous membranes, the thickening is apparent, not real, and owing to deposition on their serous surface.

Chronic inflammations are in general more certainly attended with increased bulk, swelling, or thickening, than the acute. As one of the symptoms of inflammation, change of consistence is as general as any of the others, and indeed is the most certain to be depended upon of them all. Whenever a part is inflamed, its consistence is altered. If the inflammation be acute, accompanied by high vascularity and increased flow of fluids into the part, it becomes soft and friable, a change termed ramollissement by the French Pathologists: this is remarkably the case in the compound organs, in the cellular tissue, in the mucous membranes, of whose inflammation this softening or ramollissement is the best possible test, and the only one perhaps which will serve to distinguish an inflamed state from that mechanical congestion which so readily occurs in the last moments of life. On the other hand, when the inflammation is chronic, when time is afforded for the effusion of coagulable lymph or albuminous matter into the areolæ of the cellular texture, increased density and a matting together of parts take place, so that the tissues become firmer than before. This is remarkably the case with the mucous membranes, with the serous membranes, which then become really thickened, with the pulmonary tissue, sometimes, but not always with the liver, spleen, kidney, ligaments, &c. These changes in consistency are well worthy the serious attention of Pathologists, among the general signs of inflammation, for they must be considered equally distinctive of this state with any of the four commonly enumerated.

239. Of the proximate cause of inflammation.—" By the proximate cause of inflammation, Pathologists in general wish to express that state of the body, or rather of the part affected with inflammation, on which the phenomena peculiar to inflammation more immediately depend. In this sense the term proximate cause, it is obvious, is

"merely another name for the state of inflammation; and being in fact the disease itself, it neither requires nor ad"mits of being distinguished from it."

See Thomson on Inflammation, p. 50.

For the reason just stated, Dr Thomson does not treat of the proximate cause of inflammation. With great propriety, he speaks of the state of the blood-vessels in inflammation. That state has been much disputed; one party affirming the capillary vessels to circulate the blood with greater velocity than in health; the other maintaining the velocity to be diminished on account of the debility of the vessels. latter opinion has been adopted by Dr Wilson Philip and by Dr Hastings, while Dr Thomson seems rather inclined to the former. This latter most accomplished Physician infers, from the results of experiments which he has related, first, That the velocity of the blood, so far from being diminished in inflamed vessels, is often increased, particularly in the commencement of inflammation; and that this increase of velocity may continue in the capillary vessels from the commencement to the termination of that state. This increased circulation occurs, says he, I am inclined to believe, in a greater or less degree, in that state which has been denominated active inflammation. Secondly, That a diminished velocity in the circulation through the inflamed capillary vessels, may take place in the very commencement of inflammation, and may continue during the existence and progress of that state. Thirdly, That this diminished circulation in the inflamed capillary vessels takes place, however, more frequently in the progress, than at the commencement of inflammation in strong and healthy persons; and that it is probably a state which occurs in those inflammations which have been denominated passive. This inference, I am inclined to believe, is warranted by the diminution of velocity produced in the arterial branches, by repeated applications of salt, and even-in weakened animals by a single application. If this view of the state of the circulation in inflamed vessels be just, it will follow, that inflammation is sometimes attended by an increased, and at others by a diminished, velocity in the circulation through the capillary vessels of the inflamed parts, and, consequently, that neither of these two states ought to be included in the definition which we give of inflammation. On this subject the student may refer to Dr Thomson's Lectures on Inflammation; Dr Wilson Philip's Treatise on Fevers; Dr Hastings' Essay on Inflammation of the Mucous Membrane of the Lungs and Bronchia; Dr Parry's Elements of Pathology; his Experiments on the Arterial Pulse; and Dr Charles Parry's Experiments on the Arteries, &c. After all the researches of these gentlemen, we know but little of the proximate cause of inflammation, or, in other words, the state of the blood-vessels in that disorder. We know, however, that in an inflamed part, there is a greater quantity of blood than usual; that the capillary vessels are dilated; and that the larger arteries leading to the part are in a state of increased action as to force, independent of the heart. But we are ignorant of the modifications of the vital force of the blood-vessels. We know not why some inflammations are specific, and others common, as they are termed; why some terminate in resolution, others in suppuration, adhesion, or gangrene; nor are we better acquainted with the modus operandi of antiphlogistic substances and applications. Till we are furnished with some useful information on these important points, it is needless to dwell on the state of the blood-vessels, in reference merely to the velocity of the circulation through them.

To the terminations of inflammation mentioned by Dr Cullen, ulceration should undoubtedly have been added. It fulfils important purposes in the economy, and is very frequent. It is the mode in which inflammations of weak and

new-formed parts terminate; and also very commonly those of the mucous membrane of the alimentary canal. As an useful process, in the language of Mr Hunter, it is by means of ulceration developed round dead parts, that these are separated or eliminated from the system. It is by ulceration that abscesses make their way to the surface; and during its progress, we perceive, in many instances, the most beautiful proofs of the vis conservatrix nature. Ulcerative inflammation commonly proceeds in the direction the most safe for the body. Thus, collections of matter between the dura mater and cranium do not burst towards the brain: they have a tendency at least to make their way outwards, by causing the death of the superjacent bone. Vomicæ avoid the pleura, and prefer to open into the bronchi: and psoas abscess takes a long route to the top of the thigh, in preference to bursting into the cavity of the abdomen, where it would be highly dangerous. It is a general principle in surgery, that abscesses make their way to the surface by the safest, and often the shortest course.

255. Dr Cullen's acceptation of the terms gangrene and sphacelus is not admitted by Pathologists of the present day, who do not decide on the existence of these states according to the structures affected. They rather consider them, in general, as stages of the same process; gangrene being the point where healthy inflammation ceases, but where the part is still susceptible of recovery, in spite of its tendency to mortification; sphacelus, on the other hand, meaning the process of mortification absolutely complete, in parts commonly insensible, cold, black, and fœtid. Yet even the modern sense of these terms is not strictly correct in all cases; for in crysipelas a gangrene often stops, and the part recovers without sphacelus ensuing; and in the chronic mortification of the toes of old people, I have repeatedly seen sphacelus ensue without previous gangrene; so that, upon the whole,

these two states are not necessarily connected with each other. The student should remember, that in mortification the parts are not merely deprived of life, and dead, in the common sense of the term; nor do they putrify in the common way. The term putrefaction, applied to mortified parts, is quite improper. Many really resist putrefaction, and are preserved for years in the state they had separated from the body, as is occasionally seen in some forms of chronic gangrene. In the sloughing forms of gangrene, all the soft parts are converted into one brownish or grey pulpy mass, where no traces remain of the original textures. Gangrene, therefore, is something more than merely local death of

parts.

Gangrene occurs under a variety of forms. It is often the consequence of too great excitement, as in erysipelas. It depends on debility in typhoid fevers in old people, in whom it attacks the toes, and gradually ascends higher. It often, but not always, is connected with ossification of the arteries in old people: sometimes renders the parts black, and as dry as a board; at others it destroys them by sloughing, frequently renewed. It may be acute, or chronic; humid, or dry. may be occasional only, confined to one patient; or it may be highly contagious, perhaps epidemic, and attack all the sores of an hospital. With regard to the contagious hospital gangrene of Pouteau, the pourriture d'hôpital, it is satisfactory to know, that the treatment of a disease, formerly almost invariably fatal, has been so much improved, that, unless where it has already made very extensive ravages, we possess nearly certain means of arresting its course. This is effected by destroying the sore, to a certain depth, by the actual cautery, by the arsenical solution, or by concentrated mineral acids. The first has been recommended by Professor Delpech, in his Mémoire sur la Pourriture d'Hôpital; the second in Mr Blackadder's able Essay on Phagedæna Gangrenosa; and the last, which is extensively practised in the foul wards of the London hospitals, by Mr Welbank, in his paper in the Medico-Chirurgical Transactions. It is still more gratifying to believe, that the disease, which was so common at the commencement of the present century, is now comparatively rare. I am not aware that any case of hospital gangrene has been seen in the Royal Infirmary of this city for the last four years; it was not uncommon before: and Dupuytren tells us that he has repeatedly finished his clinical lectures without having it in his power to show the pupils a single instance of it in the Hôtel Dieu, where formerly it was exceedingly rife, and often raged like the plague. This great improvement is entirely owing to diminishing the number of the patients, increased cleanliness, and better ventilation.

261. This paragraph is an admirable test of the state of pathological knowledge at the time when Dr Cullen wrote. We here see the first Physician of an ingenious nation, by a great effort, only suspecting the effects of inflammation of the serous membranes; and merely thinking it probable, that what was found after death might have been present in recovered cases during life also. At the present day, the merest tyro knows, that whenever inflammations occur in serous membranes, not only at their termination, but at their very commencement, there takes place an effusion, partly of a fluid, and partly of a solid matter. The former sometimes is in such quantity as to have the appearance of dropsy; the latter constitutes the bond of adhesion between different, and often distant parts. In progress of cure the fluid is absorbed; the lymph or albuminous matter too is gradually removed, till nothing remains but slight membranous bands, which permit of the motion of the parts they unite. Every texture of the body has its own mode of inflammation. The mucous membranes suppurate and ulcerate in place of adhering: cellular tissue runs through all the processes of inflammation without affecting any peculiar form: bone enlarges by

new deposition: the parenchyma of the compound organs either softens, or swells and becomes harder, according as the inflammation is acute or chronic, &c.

272. The specific powers of bark in the cure of gangrene, so much vaunted by practitioners of the last century, are now not only doubted, but absolutely denied, by all experienced and unprejudiced surgeons, though this substance is still frequently administered as a matter of routine. The administration of it, however, is often useful, not as a specific, but as suited to the state of the system when gangrene prevails in a part. It may be employed, with advantage, where fever of a typhoid type is present, in doses proportioned to the necessity of the case, and the powers of the patient's stomach; and where it is used, it will be generally safe, and even necessary, to give, at the same time, wine and other cordials, together with opium, in small and frequently repeated doses. The limitations laid down by Dr Cullen are to be strictly attended to. Bark is not only useless, but hurtful, when any inflammatory action is present; and perhaps it should only be given in cases typhoid from the first, or in those where the gangrene, having stopped the strength of the system, requires to be supported, so as to throw off and separate the dead parts.

In the chronic mortification of the toes of old people, opium was for a long time loudly extolled, on the authority of Mr Pott. It must be quite useless in that variety, which depends on the ossification of the arteries, or on diseases of the heart; and a long experience has shown, that it possesses no peculiar power over that which is the consequence of the debility of old age. Surgeons and physicians, therefore, of the present day, expect no wonderful cures from opium, and, for myself, though I have witnessed about thirty cases of this peculiar affection, I cannot say I was ever satisfied any one of them was restrained, not to say cured, by

this drug. Opium, however, may be freely used for the effects of this mortification: it allays pain, procures sleep, and, if it fails to cure, it at least does not increase the local mischief, and, in general, it is an excellent adjuvant of bark and wine.

Besides bark and opium, other remedies have been recommended in mortification, which I need not notice here. They have all of them fallen into discredit soon after they were first proposed, because, as Sharpe and Dr Thomson have properly shown, proper attention has not been paid to the fact, that mortification often stops spontaneously, and that salutary change is often ascribed to medicine, when it is really the work of Nature. The following passage from the latter distinguished author is so judicious, on the subject of inventors of remedies, that I cannot resist quoting it. " perusing the history of the general remedies which have, " at different times, been extolled, for their singular efficacy " in stopping the progress of mortification, it cannot fail to " surprise you, that medical practitioners, in condemning, "without reserve, the remedies employed by their prede-"cessors, should so often have been led, by some lucky "hint, or fortunate occurrence, to the discovery of a new "remedy, or mode of practice, which is never afterwards " acknowledged by themselves to have failed of producing, "in their hands at least, the most beneficial effects. If a " sufficient explanation of this curious fact be not found in "the eagerness with which most practitioners seek for pro-"fessional reputation, and in the reluctance which they " have to part with it, I know not to what other source of " information I can refer you, unless to the inestimable ob-" servations I have already quoted from Mr Sharpe's Criti-" cal Enquiry. A Materia Medica, composed by a body of " experienced practitioners, who had retired altogether from " the exercise of their profession, would give us, I suspect, " an account of the medicinal virtues of some of our most

"celebrated remedies, very different from that which is to be found in the treatises which have been compiled for us from the writings of those who, at the time of commencing authors, were either just entering into practice, or who, having been for some time engaged in acquiring the emoluments, become ambitious of sharing in the honours also of their profession. Woe be to the trade in drugs, and to the dispensers of useless medicines, if ever such a work should make its appearance, and get into any degree of popular favour!"

Thomson's Lectures, p. 572.

278. et seq.—Ophthalmia.—The subject of Ophthalmy, in its various forms, together with the various modes of treatment these require, belongs to a treatise on Surgery, rather than to a system of the Practice of Physic. Even had it been more peculiarly his province, I fear the state of knowledge at the time he wrote was not such as to enable Dr Cullen to describe, with his usual success, the symptoms and treatment of inflammations of the eye. These affections rarely fell under the notice of the Physician; for they were supposed to be of a mysterious nature, exceedingly difficult of cure, and were left entirely in the hands of empirics. But in the last thirty years, the labours of Scarpa, Langenbeck, Beer, Schmidt, and Weller, on the Continent, and of Ware, Saunders, Farre, Adams, Laurence, Travers, Vetch, and Wardrop, in our own country, have shown, that the eye is affected by disease in a manner analogous to that of other similarly organized parts, and that the treatment of its various affections must be conducted on the general principles of Pathology; so that a general knowledge of Ophthalmic Surgery being now happily diffused, all well-educated British practitioners are Oculists also, and the race of empirics has disappeared.

The limits assigned to me enable me merely to allude to

the subject, and to notice, in a very cursory manner, some of the improvements that have been lately introduced. A far better division of Ophthalmy, than into Ophthalmia Membranarum and Ophthalmia Tarsi, is into External and Internal Ophthalmy. The former is seated in the Conjunctiva, the latter affects the internal Tunics, the Choroid Coat, and Iris most frequently. The inflammation of the Choroid and Iris is sometimes merely local; sometimes it is constitutional, depending on the rheumatic or gouty diathesis, or on a syphilitic taint. Their symptoms are, great pain in the eye-ball, intolerance of light, often general fever, round the circumference of the cornea a zone of enlarged vessels owing to the anastomoses of the anterior ciliary arteries; and, on looking into the eye, we often see lymph in the posterior chamber, on the surface of the iris, filling up the pupil, and causing irregularities of the latter, and adhesions of it to the capsule of the lens. The effects of such inflammations, allowed to run their course, are generally permanent loss of sight, either from closure of the pupil, cataract, or from disease of the retina. Sometimes the whole internal parts suppurate, and the eye-ball gives way.

For these severe affections of the internal parts, nothing but the most active treatment can be of any use, or save the eye from disorganization. External applications are of no use, with the exception of belladona, which, rubbed on the eye-lids, in some degree relieves the pain, and enables us to see the state of the upper parts by the dilatation of the pupil it occasions. The lancet is, in general, to be used as much and as frequently as is compatible with the strength of the patient. Blood may be also drawn by means of leeches, or by cupping the temples, or by opening the temporal artery. Strong purgatives are to be administered; and every part of the antiphlogistic regimen very rigidly pursued. But, in many cases, these means will be insufficient when lymph has been effused, more particularly in

those destructive inflammations so often succeeding to primary symptoms of syphilis. Mercury, therefore, is often an excellent remedy, pushed rapidly to salivation, in combination with opium; and it is often seen that the disease gives way only when this mineral begins to shew its specific effects. Mercury not only checks the inflammatory process; it also causes the absorption of its products, and therefore, in a remarkable manner, it destroys new-formed adhesions, or at least lessens them. If we may reason from analogy, I should be most happy to see mercury obtain a fair trial in some pleurisies, where the new products are precisely similar to the effects of inflammations of the iris, and other internal parts of the eye.

Chronic internal inflammation is not so alarming in its symptoms, but is equally destructive to vision, causing amaurosis, cataract, permanent closure of the pupil, or incurable alterations of the vitreous humour. The treatment, of course, need not be so active. Local bleeding, and blistering or issues on the temples or nape of the neck, are to be tried, and mercury is often of the highest advantage. Great attention must be paid to the state of the constitution; and the rheumatic and gouty are to be treated by means of the remedies adapted to the particular diathesis. The removal of some of the effects of chronic inflammation fall under the treatment of the Surgeon, who often succeeds in restoring lost vision, by depressing or extracting cataracts, or by making an artificial pupil.

External inflammation, or inflammation of the Conjunctiva, assumes a great variety of forms, according to the cause which has produced it, and the constitution in which it occurs; of course, it requires corresponding modifications of treatment. It is in its most aggravated state only that it is very hurtful to vision, or destructive of it, by causing sloughing of the cornea, and consequent escape of the humours of the eyes, with protrusion of the iris.—Simple acute external

Ophthalmy is generally a tractable disease, which yields to common antiphlogistic treatment. Local applications are serviceable. Hot fomentations and poultices during the first stage greatly relieve the pain, and lessen the swelling in the second. When the disease has become chronic, blisters to the temples, and slightly astringent injections, such as solutions of alum or sulphate of zinc, contribute powerfully to restore the healthy tone of the inflamed membrane. These milder stimulating lotions may be succeeded, if they are borne well, by a solution of nitrate of silver, or the vinous tincture of opium.—Strumous Ophthalmy is generally attended with ulceration, either of the edges of the eye-lids in the line of the Meibomian follicles, or of the cornea itself. When in the latter situation, the intolerance of light is extreme: it is commonly a very tedious affection, the disposition to it being worn out, rather than being suddenly overcome, by remedies. In the former situation, ointment of the nitrate of mercury, ointment of the oxide of mercury, astringent lotions, with pure air and proper diet, will generally quickly succeed, and, at all events, the disease is never dangerous to vision. In the latter, no plan of treatment is universally applicable: it must vary with the constitution, symptoms, and ascertained effects of remedies. Some cases will yield to depletion, others require, or at least support, the strongest stimulants,-strong solution of nitrate of silver, with bark internally. Vinous tincture of opium will greatly assist in removing the specks of the cornea, which are generally the result of the little ulcers or sloughs in strumous Ophthalmy.—Purulent Ophthalmy is by far the severest form of external inflammation. It is generally the result of a specific contagion. Infants are attacked with it a few days after birth, in consequence of the application of acrimonious matter in the vagina of the mother, sometimes gonorrhoal, sometimes leucorrhoal. The discharge from the eye-lids is exceedingly copious: it is contagious; and the other symptoms

are those of high inflammation, which, if it be not controlled, very readily terminates in sloughing of the cornea and loss of the organ. A leech or two at first is all the depletion the little patients can bear; and injections of alum wash very frequently repeated, or weak solution of nitrate of silver, with the most perfect cleanliness, will commonly be sufficient for the cure. - Gonorrheal Ophthalmy, whether from contact of matter, or, as is said, from metastasis, is to be treated on the same plan, except that the means employed may and ought to be more energetic, in proportion to the constitutional powers of the patient .-Another form of purulent Ophthalmy in adults was termed the Ægyptian, because it first made its appearance in Ægypt, though, being contagious, it was afterwards extensively propagated in Britain. After much investigation, it was proved that the disease was communicated by the contact of the secreted matter on towels, dressings, &c. but was not observed to depend on epidemic influences. It was similar to the other forms of purulent Ophthalmy, and, like them, often terminated, in the acute stage, in sloughing, or permanent opacity of the cornea. This affection was one of very great importance, on public grounds, as it cost a large sum to the country from the number of pensions granted to the invalided soldiers; but the history of it has now become a matter of curiosity, rather than of practical utility. For this reason, I need say nothing here of the treatment either of the affection or of its consequences. I shall content myself with referring to the numerous essays published on this subject, at the commencement of the present century, and particularly to the publication of Dr Vetch.

311. Dr Cullen has not been happy in this species of cynanche: succeeding practitioners have not viewed it in the same light. From the histories of many epidemics which have since been published, there can be little doubt that it is

a symptomatic affection, and a variety of scarlatina anginosa, for it has been seen frequently to be the consequence of the contagion of scarlatina, and in turn to propagate the latter. The consideration of it, therefore, must be deferred till the chapter on scarlatina.

gea when applied to adults, is one of the diseases for the knowledge of which we are indebted to the modern Physicians. The ancients were very imperfectly acquainted with it: even Hoffman and Morgagni knew it only by description; and it is evident that Dr Cullen possessed very little information on the subject. Dr Baillie has the merit of calling the attention of practitioners to the important class of inflammatory affections of the larynx, by the publication of three most interesting cases in the Transactions of a Society for the Improvement of Medical and Chirurgical Knowledge.

Cynanche Laryngea, like most other inflammations, has two forms, the acute and chronic; but the symptoms of both being generically the same, the description of them may be blended together. It begins with the ordinary phenomena of catarrh, viz. some uneasiness in the throat, with some difficulty of breathing: there is commonly no appearance of redness or swelling of the fauces, a fact observed by Hippocrates, and set down by some as a diagnostic sign. The pulse is small, rapid, quick, and oppressed, more so than is usual in simple quinsy. The symptoms rapidly increase in severity. The patient complains of constant acute pain low down in the throat, with sense of burning heat and stricture, commonly pointing to the thyroid cartilage as its seat. The breathing, and chiefly the act of inspiration, becomes short and difficult, and is accompanied with a peculiar, harsh, stridulous noise, in some cases imitating the crowing of a cock, in others, not unlike the rattling in the throats of the moribund. The voice becomes altered by degrees: at first

it is merely hoarse, but in the latter stages it is either entirely lost, or is uttered in whispers only. We observe, along with these symptoms, and as one of the most prominent, a frequent and horribly painful, loud, and shrill cough, resembling that which occurs in common croup, but without membranous expectoration. By and bye the pulse becomes feeble and intermitting; the cough convulsive; respiration is almost interrupted; the patient gasps, throws off the bed-clothes, and stretches out his neck for fresh air; clammy sweats break out, till at last suffocation ensues. These symptoms are not progressive; they occur in paroxysms, with intervals of comparative ease between them. Lommius says of these, " Porro mortifera est, et omnium " horrendissima angina, certissimeque incidit et necat, quæ " neque in cervice, neque in faucibus, quicquam conspicuum "vel tumoris vel ruboris exhibet; simulque summi dolo-" ris tormentum, et vehementem sebrem, et tantum non præ-" sentem suffocationem infert."

This disease is often very quickly fatal. Several instances are recorded of death ensuing in a few hours; but perhaps it had remained latent for some time before. Dr Farre and Mr Lawrence, and various writers in the Medical Journals, have related many cases of a chronic kind. The latter is the form in which it is generally met with in this country; our Physicians not being so familiar with those acute characters which rendered the inflammations of the larynx so formidable in the eyes of the ancients.

Besides occurring as an idiopathic disease, cynanche laryngea is often one of the secondary symptoms of syphilis. It has been attributed by Astruc to the abuse of mercury; and Mr Carmichael says it is invariably fatal: but I think I have seen it cured. The symptoms of the syphilitic laryngitis are nearly the same as the idiopathic, but they are more chronic, and are attended with more ulceration of the parts,

inflammatory thickening of the membrane and vocal ligaments being the chief alterations in the latter.

It is for the cynanche laryngea that the operation of bronchotomy has been particularly recommended, and it may be practised either in the crico-thyroid membrane, or below the thyroid gland. The latter is the preferable spot, as it is further from the principal seat of inflammation. If the symptoms be at all severe, and unwilling to yield to treatment, that operation should be performed immediately: delays are highly dangerous. The disease cannot fail to be aggravated by the severe cough which is always present, the succussion of the whole tube, the action of speaking and breathing, &c. and, moreover, the continuance of these symptoms often appears to give rise to inflammation of the lungs. An early operation is therefore to be advised: a late one will often prove unavailing. Let it be well understood that we make the opening into the windpipe, not with a view of curing the disease by this measure alone, for over it, of course, the operation has no direct control; it only prevents the cough, gives relief to the difficulty of breathing, wards off the danger of suffocation, and thus, by protracting the case, allows time for the operation of those remedies which are commonly found successful in similar circumstances.

But it is proper, in this place, to take notice of the pathological state of the trachea in cynanche laryngea and croup, since it is from such considerations alone, that we can form a proper estimate of the value of the operation of bronchotomy, and decide on the cases to which it is applicable. The larynx, trachea, and bronchi, form one continuous tube: they have the same general anatomical structure; and the affections of them are similar, and commonly simultaneous. It rarely happens in laryngitis, that the inflammatory affection is confined to the larynx alone. The membrane of the epiglottis is red and much thickened; that of the vocal ligaments and the cartilages is in the same state; and it not un-

frequently happens that the glottis is still further contracted by effusion into the submucous cellular tissue. We observe, in some cases, patches of effused lymph here and there on the membrane of the trachea: these adhere very firmly, and are rarely coughed up with the expectoration, as in the case of the genuine croup. The patches often cover small superficial ulcers, except in the syphilitic variety, where these are broad and deep. The membrane being a mucous one, secretes pus in great quantity, so that much is brought up by coughing. In some cases, the disease stops in the larynx, the remainder of the air passages being quite natural. But most commonly the redness extends down the trachea, gradually diminishing in intensity, accompanied with little or no ædematous effusion, and comparatively scanty formation of purulent matter. Did we stop here, we should conclude the rest of the tube to be quite sound; but it is proper to examine the minute branches of the bronchiæ. At the secondary or ternary division of them, the disease appears to revive; becomes more decided as we cut further down; and finally, at the minuter branches, puts on exactly the same appearances, ulceration excepted, as have been noticed above in the larynx. In these latter we find puriform fluid in abundance, often more than enough to have caused, of itself, a fatal termination, and the membrane often purple, from increased vascularity.

Hence, it is evident, that we ought to look upon the cynanche laryngea, not as a separate, and as it were specific disease, but merely as the inflammation of the lining membrane of the air passages, developing itself in this part sometimes exclusively, sometimes in common with the rest, and attended with peculiar symptoms, only because the larynx has a peculiar structure and functions of its own. The affection is to be considered as part of the important disease termed Pulmonary Catarrh: and unless we keep this in mind, we shall never know when to practise, and when to

abstain from operation. This general catarrh, if I may so term it, has often other pathological states combined with it, such as cynanche tonsillaris, a complication of little importance; or peripneumony, highly dangerous, because insidious, having its symptoms masked by the more alarming affection of the larynx. Fortunately percussion of the chest, with the assistance of the stethoscope, will infallibly guide us to the knowledge of the state of the lungs.

The syphilitic form of cynanche laryngea depends on nearly the same pathological state, except that ulceration is more frequently, or rather always present. This process, I mean ulceration, is sometimes primitive; occasionally it is a consequence of the suppuration of small tubercles. The cartilages seem partially absorbed; they are often black, as if in a state of mortification, a condition probably preceded by their conversion into bone. Portions of them have been known to have been coughed up, or to have fallen down the trachea, and caused the most alarming symptoms.

The pathology of croup is so well known, that I feel I need hardly mention it here, except in reference to the operation of bronchotomy. If the cynanche laryngea be really nothing more than a general affection of the mucous membrane of the air passages, attended with peculiar symptoms, from attacking a peculiar organ, the same may be still more justly affirmed of the croup of children. Of this latter disease I have seen a very great number of cases, but in none was the affection confined to the larynx; it extended all along the bronchi. It was very evident in the larynx and trachea, declined in the larger bronchi, but became still more remarkable in the minute ramifications of these, where the membranous tube-like form of the secretion was entirely lost, and where purulent matter was found in great quantity. The sudden deaths which often take place in affections of the larynx have been attributed by Dr Cullen, and many others, to spasmodic action of the muscles of the glottis; but

the cases I have seen have convinced me, for the present at least, that that event is more truly ascribed to the disease having begun in the remote bronchi, where it had remained unnoticed, and only exciting attention when it had slowly ascended to the larynx; so that the patient, though cut off unexpectedly soon after the invasion of the symptoms, had really laboured under the affection a considerable time. Besides, croup is often a disease of the whole mucous membranes, and not of that of the respiratory tube alone. I have often seen, in the bodies of children, the membranes of the nose, mouth, and pharynx affected in common with the trachea and bronchi: the œsophagus and membrane of the stomach more rarely: once I saw croupy matter on the conjunctiva, and twice or thrice on the vagina. It has been seen also forming a complete cast of the mucous coat of the bladder. In a preceding paragraph, allusion was made to the frequent. combination of peripneumony with cynanche laryngea: the same is not true of the croup; perhaps, because in children the disease is so rapid, that time is rarely afforded for its production.

It follows manifestly from what has been stated above, that in all cases of cynanche laryngea in adults, and in the croup of children, great attention should be paid to the state of the minute branches of the bronchi, by means of the stethoscope, and that the operation of bronchotomy should not be practised where the latter are in a state of high inflammation, and gorged with pus. In such circumstances the operation will do no good, because the principal cause of difficulty of breathing is situated below the opening. Nay, it will do harm; for it will render expectoration more difficult, and sometimes obstruct it altogether. There can be no forcible expectoration without coughing, an act which consists of a strong expiration, assisted by the contraction of the muscles of the glottis. But when an opening has been made in the larynx or trachea, there can be no action

of these muscles; there can be no coughing; there can be only expiration, and therefore the sputa must be brought up with much greater difficulty. Accordingly, in some cases in which I have seen the operation performed, death ensued very soon after, apparently from this cause, viz. the difficulty of expectorating by expiration, in place of coughing, and in all of them the sputa were brought up with much greater difficulty than before. For this reason, I believe bronchotomy to be advisable in those cases only where the disease is confined to the larynx or trachea, while it ought not to be practised when the minute ramifications of the bronchi are affected, especially when the sputa are copious. The state of the bronchi can certainly be ascertained by a proper use of the stethoscope, as I shall have occasion more fully to mention under the head of catarrh.

334. I am exceedingly well pleased to notice, under this head, the useful and brilliant researches of the modern Pathologists, which have thrown so new a light on the diseases of the thoracic organs. Particularly I might mention the works of Laennec at almost every page; and I shall take care to notice, at its proper place, the assistance the stethoscope gives us in the diagnosis of the different affections of the pleura, lungs, and heart. Let me here bear my testimony to the practical benefits to be derived from a familiar acquaintance with this instrument. It is only by its means that we can arrive at any refinement of diagnosis as to the precise seat, or exact stage of the affection; and though doubtless such knowledge, when obtained, is not always followed by a corresponding improvement in practice, yet the possession of it is a great comfort to the Physician's mind, and saves him the pain of having misunderstood the case. Indeed, I am convinced, that the stethoscope is the only certain foundation of practice, and that no opinion upon breast

complaints is greatly to be relied on, if it have not been founded on stethoscopic signs.

Of Pneumonia.—Researches subsequent to the time of Dr Cullen have proved most satisfactorily the falsity of several of the propositions contained in this paragraph 334, and it is no longer allowable to consider the inflammations of the lungs and pleura under the general title of Pneumonia. Our diagnostics are quite sufficient to enable us to distinguish, by their symptoms, a pleurisy and pneumonia: the symptoms of each, when simple, are very different; and, though there be no great difference in the method of cure, yet that is not of itself a sufficient reason for confounding the description of diseases so different. Hence it is necessary to mention, in a cursory way, the history of inflammation of the pleura, and that of inflammation of the substance of the lungs; the former being the pleuritis, the latter the peripneumony of authors. Pleurisy, or inflammation of the pleura, may be either acute or chronic: it is generally, as far as my observation goes, acute, when combined with inflammation of the substance of the lungs, and very commonly passes into the chronic form when it exists alone. may be fatal in a few days; I have seen it last for two years, and finally cut off the patient by the pressure of the effused fluid on the sound side. The disease may be general over the whole pleura, or partial, confined to the portion of it lining the diaphragm, or situated between the different lobes of the lungs. Its causes are various, but the application of cold is by far the most common. According to its severity, and the time it has lasted, different changes are induced in the state of the membrane and its secretion. In the first stage, and soon after the attack of inflammation, the vascularity of the pleura appears increased, and shows small effusions of blood in dots or patches, while its transparency is much diminished. This increased vascularity, however, is

not really in the membrane itself, but in the subserous cellular tissue; the loss of transparency seems owing to the want of secretion of the serous surface. In a short time, the increased vascularity terminates in effusion. This latter is of two kinds; one, soft, pultaceous, yellow, like soft fibrin of the blood, is the coagulable lymph of Pathologists, the usual product of all inflamed serous membranes. A large quantity of it adheres to the membrane itself; portions of it are loose in the general cavity of the pleura. At first this matter is inorganic; by degrees it becomes more solid, firm, vascular, and at last is organized into membranous bands, which connect together the lungs and pleura, and form the adhesions so often met with in opening the chest. When this coagulable lymph has existed for some time, it becomes united to the pleura by vascular connections, in such a manner, as to give to this latter the appearance of greatly increased thickness; but it can be generally scraped off from the surface of the membrane, which will be found of its original smoothness, and nearly as thin as before. The other kind of effusion is liquid, often colourless and transparent, like pure serum, sometimes turbid, yellow like pus, and generally having a considerable quantity of the more solid matter floating in it, in the form of small fragments or membranous shreds. When the effusion is clear and transparent, the case is often thought to be one of hydrothorax; when it is yellow and turbid, it is often said to be pus. But it is hardly ever of one kind: there is generally a mixture of the two sorts, the clear portion occupying the highest situations, the yellow and turbid the inferior. The sero-purulent effusion, with its flakes of coagulable lymph, brings about important changes on the parietes of the chest, and on the viscera. The affected side is dilated, in proportion to the quantity of the fluid; and though there be no great difference between it and the sound side by measurement, yet the eve very readily perceives even the slightest disproportion. This is best seen when the patient is examined behind, on looking to the angles of the ribs, which will be found enlarged, while the intercostal spaces are dilated and prominent, in place of being depressed. It would appear as if at first the effused fluid dilated the side to the capacity of the very fullest inspiration, but left it capable of contraction on the distending force being withdrawn. When the dilatation has long continued, the angles of the ribs preserve their new shape, so that the alteration is very manifest on looking into the chest, at the examination of the body. With the effusion, changes are brought about in the situation of the thoracic organs. The diaphragm is pushed downwards, so that the liver emerges from below the ribs, and projects in the abdomen: The lungs are pressed upon, recede from the parietes of the chest, and finally are emptied of air, collapse, and are glued to the vertebræ and mediastinum, by a layer of effused lymph. If the effusion be on the right side, the mediastinum gradually yields before it, and the heart is crushed against the ribs on the left. If it be on the left side, the heart is driven over to the right, and is felt pulsating generally between the third and fourth ribs. The pulsation is not caused by the point of the organ, which does not change its relative situation, but by the right auricle, the part that comes in contact with the ribs in the new situation. When a cure takes place after effusion, the solid matter is organized into cellular membranes; the liquid matter is slowly absorbed. But as the compressed lung does not regain its original volume, either from the new adhesions, or because it had been somewhat matted together, the parietes of the chest are altered, and become contracted as they were expanded before, and hence, those who recover from chronic pleurisy have generally a contraction of one side of the chest, very visible to the eye, and often followed by curvature of the spine.

Such are the anatomical characters which distinguish

pleurisy in general; but they differ according as the affection is general or partial, acute or chronic. The symptoms of pleurisy are some of them necessarily connected with the disease; others merely accidental; and it may be stated as a general truth, that without the assistance of percussion and the stethoscope, it will be impossible to distinguish with certainty an inflammation of the pleura from a rheumatic affection of the intercostal muscles. Pain of side is generally present, but it is often absent, and frequently is not referred to the part most affected; on the contrary, it varies in its seat, and seems confined to one small spot, when the inflammation is general over the pleura. It is one of the best tests of pleuritic pain, that it is increased by pressure between the intercostal spaces. As the disease advances, it commonly becomes less; and when it has fairly assumed the chronic form, with copious effusion, it consists rather of a difficulty of inspiration than of actual pain. Difficulty of breathing is not an invariable sign; its presence or absence depends on the peculiar powers of the individual, not on the nature of the disease. At first it is owing to the difficulty of inspiration from affection of intercostal muscles; afterwards to pressure on the lungs.

But difficulty of breathing is by no means a constant symptom; it is often absent altogether, not only in the first stage, but in the second also, when the affected side is dilated, and the cavity of the pleura filled with effusion. I have seen the respiration nearly natural, where the patient, in a very chronic case, had curvature of the spine from the weight of the effusion; and he was much surprised at my suspecting his respiration to be otherwise than natural. In reference to the state of the breathing, it is always proper to place the hand extended, in contact with the parietes of the chest; for the ribs on the side affected are often fixed, and do not move in the respiratory acts in the first stage owing to

pain; in the second, because no air can be introduced into a cavity filled with the effusion.

Cough is one of the accidental symptoms of pleurisy. It is most frequently present,—short, because it excites pain, and dry. But it is not necessarily present, as it depends on a simultaneous affection of the membrane of the air passages, which, of course, is often wanting. When it is attended, as some authors have stated, with bloody expectoration, we may be sure that the substance of the lungs is inflamed.

In general, the position which the patient occupies, is worthy of attention. He lies most commonly on the affected side, when the complaint is stated in the pleura costalis, because in this posture he can breathe more freely with the muscles, and because the effusion is prevented from pressing on the mediastinum, and so on the lung of the sound side. I have seen patients remain for months with chronic pleurisy, during which time they lay constantly on the affected side; and, indeed, in some cases, it was this position alone which led to the suspicion of the complaint. The above observations, however, are by no means universally applicable: the patients sometimes prefer the sound side, and often all postures are equally easy.

Like the other accidental symptoms, general sympathetic fever may be present or not. In acute cases, it is most commonly seen, and generally subsides, or disappears altogether, when the disease assumes the chronic form. The fever is very irregular; it is often ushered in by rigors; these are often wanting; it is sometimes intermittent, sometimes remittent; in the latter stages it is often decidedly hectic; and not unfrequently shows itself in the form of accelerated pulse towards evening. I have repeatedly seen patients walking about quite free from fever, who, nevertheless, were in a state that required the operation of empyema.

In general, therefore, it may be affirmed, that none of the above accidental symptoms can be relied upon as a ground

for diagnosis, and even a combination of them is not sufficient to enable us to distinguish a case of pleurisy from one of rheumatic affection of the intercostal muscles. The diagnosis, by means of them, can at best be but presumptive or approximative. It becomes certain and indubitable, when we attend to the essential symptoms furnished by percussion and the stethoscope; the two must be conjoined together, for percussion alone would mislead us.

Percussion, the test proposed by Auenbrugger, is of the greatest use. It is practised by tapping gently with the points of the fingers corresponding portions of the opposite sides of the chest; that is, we must take care to compare together the sounds emitted on striking a rib, or an intercostal space on each side; and not a rib on one side, and an intercostal space on the other. A very slight force is sufficient: we should never put the patient to pain, and the fingers should be let fall quite perpendicularly on the part struck. If one side sound duller, flatter than the other, we may be sure that there is some mechanical cause, which, on the dull side, prevents the air contained in the lungs from coming properly in contact with the parietes of the chest. In pleurisy, this happens in consequence of the effusion, which pushes the lung to a distance from the ribs, and therefore causes the dull sound. At the very commencement of the disease, and when the effusion is moderate in quantity, the difference between the sounds of the two sides is of course not very great, but afterwards it is exceedingly well marked, both on account of the increase of effusion, and because the sound side really becomes more sonorous than in the natural state. The dull sound, at first, is partial: it soon extends over the whole side, and commonly from below upwards, so that at last the affected side sounds as dull as a barrel filled with fluid. But percussion alone is not sufficient; for when the sound is dull, it may be owing to hydrothorax, peripneumony, or a combination of pleurisy with peripueumony, as

well as to a pure pleurisy; and therefore, to be quite certain of the diagnosis, we must compare the results of percussion with those afforded by auscultation or the stethoscope.

When we make use of the stethoscope, we have to attend to the state of the respiration, and to the peculiar sound of the voice. I suppose the reader acquainted with the sound of the unfolding of the air-cells in the perfectly natural state of the lungs. This sound is greatly altered by the presence of pleuritic effusion, as we can always readily ascertain, by comparing the affected with the sound side. When the disease is in its first stage, when the effusion is moderate in quantity, and causes only a slight degree of pressure on the lung, the respiratory murmur is louder than on the sound side, more acute, and seems nearer to the ear of the listener. But it is otherwise changed: it does not convey the sensation of pulmonary tissue unfolding itself: it is not crepitating: it rather seems to take place in large cells, in branches of the bronchi, and, accordingly, this kind of respiration is often called bronchial respiration. It is heard whenever the tissue of the lungs is subjected to such a degree of pressure, that the cells do not readily unfold themselves, while air freely passes into the minute branches of the bronchi; and therefore it is present at the commencement of pleurisy when the effusion is still moderate, and particularly in the frequent combination of pleurisy and pneumonia termed pleuro-pneumonia. The bronchial respiration does not last long; it becomes more faint as the disease becomes more decided, as the effusion grows more abundant, and, finally, the respiration ceases to be heard at all. It is a general rule, that the sound side is somewhat changed, and has its respiratory murmur increased in intensity. We must also listen to the voice of the patient, as he speaks, through the tube of the stethoscope. It has a peculiar character at a certain period of the disease; it has the singular modification called Ægophony, that is, it becomes tremulous, and has its key altered, while,

at the same time, it appears to traverse instrument, and to be addressed to the ear of the listener. The sound is in general acute, very like that of Punch in the puppet-show; or resembles the bleating of a goat, and hence the name. It seems to depend on the same causes as bronchial respiration, and is present under the same circumstances, that is, when the effusion is moderate, at the commencement, and during the decline of a pleurisy. It is not heard when the effusion is considerable, during the most violent period of the disease. It is heard only when the effusion is moderate; that is, at the commencement, and at the decline of the affection, while there is commonly an intervening period during which it is not heard at all, the lungs being at too great a distance from the parietes of the chest, to communicate any peculiar vibrations to the ear of the listener. Hence, therefore, the appearance and disappearance of ægophony has an important influence on our prognosis. While it lasts, we judge the effusion to be moderate in quantity, and principally membranous matter; when it disappears, while at the same time the parietes are less sonorous on percussion, we may be sure that the disease is increasing: on the other, when ægophony is again heard, we judge that it is diminishing. This peculiar sound is not heard equally well over every part of the affected parietes: it occurs only in a particular zone, extending about a hand's breadth above and below the nipple. It is first heard at the lower part of this zone; but, as the disease advances, it becomes sensibly higher and higher, till it reaches the prescribed limits. When the disease declines, the sound is first heard at the highest part of the ægophonic zone, and then gradually lower down. In general, it is more distinct at the inferior angle of the scapula, than at any other part. I have seen it remain there for months.

By this assistance of these symptoms, derived from percussion, and the stethoscope, we can discover, with certainty, the existence of pleurisy in its different stages and degrees, and distinguish perfectly when it is simple, and when it is combined with other affections, either of the lungs or of the heart, a precision of diagnosis unknown in medical or surgical practice prior to the introduction of the stethoscope. I say surgical practice, as well as medical; because an exact diagnosis is absolutely necessary in reference to the operation for empyema, the paracentesis thoracis. This operation is not often performed, not because cases requiring it are not often met with, but because the practitioner is rarely, or never, so sure of the case, as to recommend it with confidence. I remember a conversation I once had with my most distinguished friend Mr Abernethy, in which that excellent surgeon informed me, he had often seen the operation performed where there was no fluid to evacuate, and as often omitted when the thorax was completely distended. Let us hope that such errors will now be rarely committed, and that we shall see paracentesis thoracis as frequently performed as it may be necessary, and that we shall have some treatise of the subject published, at present a great desideratum.

Dr Cullen has stated, that there is an impossibility of distinguishing the inflammations of the pleura from those of the lungs; but a slight acquaintance with the history of peripneumonia will be sufficient to prove the error of this opinion. Their essential symptoms are quite different.

Pneumonia, or inflammation of the cellular tissue of the lungs, presents different appearances of organic lesion, according to the stage of the disease, and according as the case is acute or chronic. If the lung be examined soon after the commencement of the disease, it will be found in the state denominated Œdema, or, as English Pathologists express it, Congestion. It is of a darker venous hue than is natural; it is tolerably firm, but soft, still crepitating, and from all parts of it can be readily squeezed a considerable quantity of yellowish serous fluid. It has acquired additional weight, but does not sink in water. It is sometimes very difficult to decide,

whether the above appearances be owing to disease, or to the position of the body after death; and indeed we cannot be positive, unless we see elsewhere, but in connection, traces of undoubted inflammation, or Hepatization as it is called. When the inflammation proceeds further, the texture of the lungs becomes still more changed. It becomes solid, of a deep red colour, granular, so that it resembles the liver or spleen, and is said to be hepatized; but at the same time, like other textures attacked with acute inflammation, it becomes soft, so as to be torn with the utmost facility. softening of the lung is one of the best tests of its acute inflammation. When it is in this state, it has become impermeable to the air: it no longer serves the purposes of respiration; for the air-cells have been matted together, and slices of the inflamed lung will sink in water, provided no large bronchial branch be in the section. This state of hepatization generally co-exists with simple ædema in other parts of the affected lung; and as it generally happens, that the inflammation begins in the most depending portions, and extends gradually upwards, it is commonly found that the inferior lobes have become quite solid, while the superior is still merely in a state of ædema, or congestion. After the stage of hepatization, ensues that of suppuration. But the suppuration of the lungs is peculiar, and very different from that of common cellular texture. The pus is not collected into an abscess; indeed, abscess of the lungs is one of the very rarest pathological alterations, and I have not seen it above twice in the course of several years, diligently spent on the diseases of the chest. The pus is spread uniformly through the cells, and in the interlobular cellular tissue, so as to give the inflamed part a greyish marbled appearance; and it may be squeezed out here and there under the form of small purulent globules. This suppuration of the lungs has been termed Grey Hepatization; because the part has acquired, along with its grey hue, somewhat of the granular appear-

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ance of liver. In the different states which we have just described the disease is acute, and the texture of the inflamed part is exceedingly soft and friable. But if the inflammation be chronic, then the opposite condition occurs here as in other textures, and the inflammation is attended with hardening and thickening. Hence M. Andral, in his most excellent work, has described the endurcissement gris and rouge as varieties of the chronic affection. The inflammation of the tissue of the lungs is never a simple affection. It is generally attended with inflammation of the pleura pulmonalis, and always with that of the lesser branches of the bronchi. Indeed, since we cannot but admit that the air-cells are mere dilatations of these branches, it is extremely natural that they should be affected by the same causes, and in common with each other. Hence the symptoms of pneumonia are various, according to the complications of the affection; but here, as with regard to pleurisy, we derive the most indubitable signs from the use of the stethoscope. These signs are so precise and certain, that pneumonia is now one of the most easily recognised diseases; and we can follow its progress, step by step, as surely as if the lung were exposed to our view. In the same manner as when treating of pleurisy, we shall here distinguish between the occasional and accidental symptoms of pneumonia, and those which are constant and necessary effects of the organic lesions. Under the former head we have to mention pain. Too commonly enumerated among the symptoms of the disease, it would appear, from the latest and best researches, to depend on the inflammation of the pleura, rather than on that of the pulmonary texture, and consequently is most commonly present in cases of pleuro-pneumonia. It is therefore often entirely wanting, and is always of a dull obtuse kind, not to be referred to the part really inflamed, and very often scated about the middle of the chest. It is more severe at the commencement of the disease, in the stage of

tedema or congestion, and subsides as that of hepatization comes on. It frequently returns as resolution advances, so that it would appear as if a certain degree of expansion in the pulmonary cells were necessary for its existence. Hence the necessity of attending to the period of the disease at which pain is present, before we think of bleeding the patient. That operation is often needlessly practised on account of pain suddenly occurring, when otherwise all seems going on well; it does not denote a renewal of the inflammation, but rather a return of the lung from hepatization to the crepitating state.

Difficulty of breathing is not more constant in pneumonia than it is in pleurisy, though, upon the whole, it is often well marked, and in proportion to the extent of the substance of the lung rendered unfit for the purposes of respiration. culiarities of constitution, however, have a great influence on this symptom; some individuals, with a slight inflammation, being unable to breathe but in the upright posture; others with a whole lung in the solid state making hardly any complaint. I have seen a patient drop down dead, who had never complained of difficulty of breathing, in whom the whole of one lung, and a considerable part of the other, were quite unfit for the purposes of respiration. Cough is one of the most invariable symptoms of pneumonia, from the constant presence of an affection of the bronchi. At first it is short and difficult, but becomes more frequent and free as the disease advances. It is attended with an expectoration of a peculiar kind, the qualities of which indicate, with great certainty, the degree and state of the inflammation. this subject, which has hitherto met with little attention in Britain, I shall quote at some length, from a most excellent Thesis of M. Andral, published at Paris, in 1821, entitled, Recherches sur les Crachats dans les différentes Maladies de Poitrine, the truth of whose opinions, I can bear testimony to, from what I myself have seen, along with the author, in

the hospital of La Charité. In the beginning of the disease, says he, as soon as cough, dyspnœa, a decided febrile action, and deep-seated pain in the interior of the chest, are perceived, the patient does not expectorate, or at least only a little mucus from the mouth or bronchi, mixed with some saliva. In proportion as the affection becomes more fixed, the sputa assume their proper character, which usually happens on the second or third day. They become tinged with blood, and, according to the quantity of this latter, they are either yellow, or of the colour of rust of iron, or of a vivid red. At the same time they become viscid and tenacious: they adhere together, so as to form a transparent homogeneous mass; but if the vessel which holds them be inclined, they may be emptied from it with ease. Thus, at this period of the disease, the sputa adhere firmly to each other, but have not yet acquired viscidity enough to stick to the bottom of the vessel. Often, during the whole course of the pneumonia, they remain exactly such as we have just described them. In such circumstances, the disease does not pass beyond the first stage, or that of simple congestion of the pulmonary tissue, but, often, the sputa become so very tenacious and viscid, as not to be detached from the vessel, when it is turned upside down. We have then reason to fear that the inflammation has made farther progress, that it has passed into the second stage, or that of hepatization. The pneumonia is then at its most acute degree. Here the sputa retain for some time the above characters, but they afterwards assume a different appearance, according as the disease is to terminate by resolution, in death, or by passing into the chronic form. When the disease goes on to resolution, the quantity of blood contained in the sputa and their viscidity begin to diminish, so that at last we can easily empty the vessel merely by holding it a little to one side; and, finally, they become exactly like the expectoration of acute catarrh.

We often see patients, in whom the sputa, after losing their viscidity and bloody tinge, become again tenacious and the colour of rust: it is a certain sign that the inflammation has increased in violence, as is proved by the aggravation of the other symptoms.

Expectoration occurring before the fourth day, is looked upon by Hippocrates as a favourable sign, as having a tendency to hasten the resolution of pneumonia. But when later, it is less so; for, as the sputa become more viscid, and the strength of the patient sinks, they are expectorated with greater difficulty, and hence the dyspnœa is increased, and of course the danger of the disease. For the same reason, an extreme viscidity of the sputa at the commencement, is unfavourable, as Hippocrates had remarked.

When the pneumonia, in place of terminating by resolution, goes on to suppuration, the expectoration exhibits certain new appearances, important to be known and understood. In the majority of cases, it becomes scanty and difficult, and, finally, is altogether suppressed. But often the secretion of it continues, only the excretion becomes impossible, on account of the great weakness of the muscular power of the patient. The sputa, therefore, accumulate in the bronchi, trachea, and larynx, obstruct the passage of air through these tubes, and thus cause death by asphyxia. The rattle heard in the throat, under such circumstances, is a proof that death is owing to the retention of the sputa. In some patients the secretion of the sputa ceases more or less suddenly, when the state of the mucous membrane of the bronchi may be compared with that of some ulcers, in which the discharge suddenly dries up. When the suppression of expectoration is owing to the retention of the sputa, the danger is always very great. But when there is no expectoration, because the mucous membrane of the bronchi has ceased to secrete it, we must pay attention to the other symptoms, and take care not to form a prognosis from this one

alone. For we have often seen patients labouring under the most acute disease, cease suddenly to expectorate, without any bad consequence ensuing; but such cases have commonly terminated very slowly. We have not observed, as several authors have asserted, that another vicarious evacuation took place. In many patients, at the approach of death, the sputa are not suppressed, but they are changed in appearance. They expectorate for the last twenty-four hours of their life some opake sputa, in patches of a dirty reddish grey colour, very like the sputa of some consumptive patients the day or evening before their death. Is the grey hepatization of the lungs, or, in other words, pneumonia terminating in suppuration, characterised by any peculiar expectoration? Medical authors have not stated any thing precise on this question. Of the patients cut off by acute pneumonia, in whom we have found the lung infiltrated with pus, some had ceased to expectorate before death; others had the opake sputa in patches of a dirty grey colour, which have been described above: however, in the great majority, the sputa lost their gelatinous appearance, their great viscidity, rusty hue, and seemed composed of a fluid more or less deep in colour, sometimes quite black, and very like the juice of liquorice or stewed prunes.

Although, in the great majority of cases, we have observed the sputa black and liquid, such as we have described them, only in those whose lungs had gone on to suppuration, nevertheless we have sometimes seen them in cases of mere ædema or congestion. And, in particular, I once met with them in a slight pneumonia, which terminated favourably. Whatever be the cause of such an anomaly, the observations which prove them are deserving of our utmost attention. They must convince us that the inspection of the sputa only furnishes probabilities greater or less, but never an absolute certainty, either as to the stage of the disease, or as to the

termination it is likely to have.

When a pneumonia has terminated by a suppuration, the pus commonly remains as it were infiltrated into the substance of the lungs; it is only in some very rare cases that it is collected into an abscess. M. Laennec has found collections of matter only five or six times, the largest of which would have contained the points of three of the fingers. I have found such a collection once only, in the lung of a patient who died on the nineteenth day of the disease. The middle and inferior lobes of the right lung were in a state of grey hepatization; but in the centre of the inferior lobe, there existed a sort of greyish purulent bouillie; around it the lung was at first very soft, as if broken down, but gradually, at a greater distance, assumed a certain hardness.

If abscess of the lungs, as a sequel of pneumonia, be one of the very rarest morbid alterations, how happens it that we find, in ancient authors, so many instances of the disease ending in the evacuation of one of these abscesses, which they termed Vomicæ? They believed that the collection of pus formed in an inflamed lung might sometimes impede respiration merely by its size, and cause death by suffocation; or that it might make a passage for itself by the bronchi, into which it was poured, either slowly or suddenly; or that it might burst into the cavity of the pleura, or into the mediastinum; or, in some cases, that it might be absorbed from the lungs, and be eliminated, either by stool or by the urine. But if these numerous cases of vomicæ be read with a little attention, we shall be convinced that they must have been caused by alterations very different from a real abscess of the lungs; sometimes by a tubercular mass softened and burst into the bronchi; sometimes by purulent matter collected in the pleura, and expectorated after causing ulceration of the lung. Especially partial pleurisies seated between the lobes of the lungs, have been mistaken for abscesses. Finally, a copious supply of pus, suddenly poured out from inflamed bronchi, has been the source of error.

We have still to treat of the expectoration in those cases in which acute pneumonia passes into the chronic state, or in primitive chronic inflammation; but the sputa have no peculiar character; they are the same as we meet with in pulnionary catarrh. If, however, the symptoms of chronic pneumonia were to present an exacerbation, so that the disease should pass for a time into the acute state, it is probable that this change would be indicated by the nature of the expectoration, which would re-assume its tenacity, transpa-

rence, and rusty hue.

We have hitherto been employed in describing the expectoration in its most usual state, in the different stages of pneumonia; and we have made several applications of it, both to the diagnostic and prognosis of this disease. shall now attempt to show the importance of this symptom; for there sometimes occur cases, in which the inflammation of the lungs can be recognised only by paying attention to the expectoration, which then becomes a genuine pathognomonic sign. Let us suppose, for example, (and this supposition is too often real,) that an individual, already suffering from a disease of the heart, be attacked by pneumonia: then the unusual acceleration of the breathing, the difficulty of it, the increased frequency of the pulse, and the general uneasy sensations of the patient, may very naturally be ascribed to a temporary aggravation of the symptoms of disease of the heart: it is what we see every day. The appearance of cough can throw no light on the case; for pulmonary catarrh is a very usual complication of aneurism of the heart, and percussion is useless when the parietes of the chest are in a state of ædema. The appearance of the sputa, and the stethoscope, are then the only means by which we can learn that the lung is inflamed: but as the latter instrument is often insufficient to distinguish between a pleuritic effusion and an hepatization of the lung, the expectoration becomes the only symptom to be trusted to, in this difficult but not uncommon complication.

Again, when the pneumonia occupies the centre of the lung, its diaphragmatic surface, or its root, the sound of the parietes will remain clear on percussion; the respiratory murmur will continue to be heard; and if, along with cough and dyspnæa, there be pleuritic pain, we shall believe that the pleura is inflamed. The mistake is the more likely to be made; because the affection, extending to a small circumscribed portion of the organ only, will be attended with but slight general symptoms; however, the examination of the sputa will then be a decisive test of the presence of pneumonia. Again, in the case where a pleurisy terminates in effusion, the want of pneumonic sputa will be sufficient to distinguish the inflammation of the pleura from that of the substance of the lungs.

Itseems to me to follow, from the observations made above, that the expectoration is the true pathognomonic sign of pneumonia. But we must be careful not to conclude that this disease is not present, because this symptom may be wanting in a patient who has all the other signs of it; for in some rare cases, indeed, we have seen patients cut off, in whom the presence of pneumonia was proved on dissection, but who had never expectorated. These, however, are to be considered as exceptions to the general law above stated, and analogous to the exceptions which we meet with to most universal truths of medicine.

Inflammations of the lung, without sputa, are observed most commonly in those cases in which they occur as complications of severe fever. The patients, in the last stage of debility, having no longer the use of their intellectual faculties, commonly swallow their sputa, which they have lost the power, or the instinct, to expectorate. But sometimes also they cease to be secreted; and as the other symptoms are attributed to the fever, the disease frequently passes unnoticed, unless detected by percussion, and the use

of the stethoscope. When the pneumonia is the primary disease, it is much more rare to find the expectoration wanting. However, I have met with such cases.

The source of the sputa of pneumonia is manifestly in the mucous membrane of the bronchi, sympathetically affected, or perhaps by continuity of diseased action. We very constantly find that membrane very red. In consequence of the active inflammation present, the liquid it secretes is at first suppressed, and afterwards reappears, but modified in its appearance: and along with it escapes a quantity of blood, or at least of its colouring matter. An analogous appearance is seen in other mucous membranes. Thus, in violent inflammation of the alimentary canal, we find the most affected parts of its internal surface covered with a viscid bloody mucus, while in the points where the membrane is less red, the mucus is grey, yellow, or greenish, and much less tenacious.

In proportion as the inflammation of the pulmonary tissue subsides, that of the bronchi also declines, and the sputa become the same as in catarrh.

If there be no expectoration, or if, after having formed, it becomes suddenly suppressed, these varieties depend on the peculiar circumstances of the membrane of the bronchi.

The watery sputa, resembling more or less the juice of stewed prunes, are connected with the condition of the bronchial mucous membrane. Like all inflamed tissues, the latter has its secretion variously altered, according to the degree and kind of inflammation.

But does the colour of the sputa entirely depend on the presence of blood? May it not be owing sometimes to bile? I would not deny the truth of this last cause entirely, but it must be much less common than is generally imagined; and in the great majority of instances, the various colours of the sputa are to be attributed to a variable quantity of combined blood. If, for instance, we mix a little blood

with pure water, and gradually increase the proportion, we shall see the mixture gradually be of a deeper yellow hue, then it will become greenish, and then there will be a tint compounded of yellow and red, the colour of the rust of iron; finally, it will be a deep and pure red. We find in the serum of the blood the various shades of yellow, green, and red, according to the quantity of colouring matter which it has retained. Analogy should lead us to conclude that the same thing takes place in pneumonia. In the greater number of cases, the sputa are yellow at the commencement of the disease; they afterwards become of a red hue, more or less deep; and then, as the disease subsides, they reassume the yellow or greenish appearance. Are we to believe that the blood and bile have, in such instances, succeeded each other, while this alternation of colours can be explained so readily on the supposition of the variable quantity of blood contained in the sputa?

The acute inflammation of the pleura is unaccompanied by any expectoration, or, at all events, the sputa are the same as in acute catarrh. Aretæus long ago noted the difference between the sputa of pleurisy and pneumonia. There are hardly any sputa, says he, in pleurisy, sputa vix excreata, while they are copious and bloody in pneumonia. We are far from finding so precise ideas on this subject in Hippocrates or Galen, or even in the writings of Physicians of the two last centuries, who have too often confounded the symptoms of these two inflammations.

When the pleurisy has ended in effusion, the expectoration is still the same as in catarrh; but if a communication be established between the cavity of the pleura and the bronchi, the effused fluid is evacuated throug' the latter, and gives a character to the sputa. The peculiar nature of these, and the manner in which they are brought up, are generally considered as indubitable signs of the nature of the case. But it may be doubted if this idea be altogether cor-

rect. It is affirmed that purulent matter, collected in the cavity of the pleura, differs totally in its physical qualities, both from bronchial mucus, and from the liquid secreted in phthisical caverns. But these distinctions, so easily laid down in books, are not readily made at the bedside of the patient. The extreme fector of the sputa, their garlick smell, have been regarded as characteristic of their being formed in the pleura; but the expectoration in phthisis is often extremely feetid; and, besides, it is often quite inodorous in cases of communication between the pleura and bronchi; because, as has been asserted, air could not find a passage from the latter to the former, in consequence of the valvular structure of the aperture.

The evacuation of a collection of matter in the pleura by the bronchi may be recovered from, or it may be fatal. In the former case, the inflamed membrane ceases to secrete pus, cellular adhesions take place, the compressed lung reexpands, and the patient is cured. In such a case it is of importance that the matter should be slowly discharged, in order that the expansion of the lung may take place slowly. In the fatal termination, the patient sometimes is suddenly suffocated; sometimes he is gradually exhausted by the long continuance of the disease.

But this termination of pleurisy is, on the whole, rare. In by far the most instances, in which there was a pleurisy with perforation of the lung, the cavity of the pleura did not communicate with the bronchi, but with a tubercular cavity, more or less extensive; and it is probable that it was this latter which, by bursting, had given rise to a consecutive pleurisy. I have found many of these caverns whose walls were formed only by the pleura pulmonalis in its natural state: had these patients lived longer, it is probable that the pleura would have given way, and thus a communication would have been established.

See Andral, Recherches sur l'Expectoration.

Thus, then, it is manifest, that from the examination of the sputa alone, we can often ascertain, with certainty, the existence and precise stage of a pneumonia; but we must also never fail to confirm our diagnostic by the use of percussion and the stethoscope. The use of the two latter is indispensable, both because in some cases of inflammation of the lungs the expectoration is suppressed, and because the sputa give us no information as to the precise seat and extent of the disease. Whenever we have reason to suspect the existence of pneumonia, we should examine the lung from below upward; for it is generally observed that the inflammation begins in the most depending parts, and gradually extends to those that are above. At first, and when the disease has gone no further than congestion, percussion will produce the same sound on both sides; but in proportion as the lung becomes more solid, the sound will become duller on the affected side, and we shall find that it is more dull at the lowest part, and gradually becomes more sonorous and natural as we examine higher up. When the lung has passed into the state of hepatization, the sound is as dull as would be emitted on percussion of the thigh; so that, in general, the degree of sonoreity is a good criterion of the state of the disease. But, on the other hand, percussion alone is not to be trusted to. It does not indicate any thing in the very first stage of the disease; when both lungs are affected, we have no standard of comparison, and it is of no use where the disease is in the centre of the lung, while the superficial parts are sound.

For these reasons, we must, moreover, have recourse to the stethoscope, without which, in many cases, the diagnosis would be quite impossible, and always difficult. The moment an inflammation begins in the texture of the lungs, often long before the expectoration becomes characteristic, and when percussion shows no difference between the sound and the affected side, the application of the stethoscope de-

tects an alteration in the noise of respiration. This has been termed the Crepitating Rattle. This peculiar sound conveys to the ear of the listener the impression, that the air-cells are somewhat enlarged, and that the contained air-bubbles are more voluminous than in health, while, at the same time, there seems to be present in the cells a small quantity of moisture. This crepitating rattle is heard most distinctly where the inflammation is highest; and from this point it gradually diminishes, till it is lost in the healthy natural respiratory murmur of the parts still unvisited by the inflammation in its first stage. When the disease is spreading, the respiratory murmur grows more decided; and if we follow it carefully, we shall find it gradually passing into the crepitating rattle, so that this last would seem to be, and is in fact, nothing but an aggravation of the natural sound. Wherever this rattle is heard, there the lung is inflamed; the extent over which it is heard is an exact measure of the extent of the disease. In general, we find, that, like the inflammation itself, the sound in question gradually extends upwards, as long as the disease is on the increase, and, on the other hand, descends lower and lower as it declines. At this period percussion affords no result. If the disease increases, the crepitating rattle becomes gradually more decided, seems more voluminous, and, at the same time, more humid, up to a certain point; but it changes its character with the approach of hepatization. It ceases altogether when the cells become matted together; and this ceasing of the crepitating rattle at the inferior parts, while it continues in the superior, is quite characteristic of pneumonia; it proves, that below, the disease has passed into the state of hepatization, while above, it is in the first, or congestive stage. But there is still a kind of respiration carried on in the hepatized lung; but it is not that of the air-cells; it is manifestly in the bronchi, and hence has been termed Bronchial Respiration. It is very distinct in the neighbour-

hood of the root of the lung, where the larger branches of the bronchi are situated. If we listen to the sound of the voice also, we shall find, that it is very loud, and passes a certain way into the tube, but does not traverse it: this has been called Bronchophony: it is a modification of pectoriloquism, and sometimes cannot be distinguished from it, except by a very practised ear. In proportion as the inflammation subsides, the crepitating rattle again succeeds to the bronchial breathing, or to the total absence of all respiratory noise; becomes by degrees more and more distinct, till at last it changes into the natural sound of respiration, which marks the complete return of the parts to the healthy state. Such are the stethoscopic signs of pneumonia in general: they may be easily applied to the great majority of cases, whether primary, or merely symptomatic; but, besides, there are peculiar cases, where the difficulty is greater, and where experience alone of the use of the instrument will guide us to that refinement of diagnosis, as to the precise seat and extent of the disease, which, at the present day, may be obtained, and is required in practice. Upon the whole, from what I have stated in the above remarks, I think it will not be disputed, that the signs laid down by Dr Cullen are not to be relied on, and are only adminicles of proof, while we possess, in a comparison of the evidence furnished by the sputa, percussion, and the stethoscope, the most certain symptoms of the seat, stage, and extent, both of pleurisy and pneumonia.

See Laennec, Traité de l'Auscultation Mediate, 2d edition, And Andral, Clinique Medicale, 2d vol.

343. M. Andral, in the work just cited, has mentioned several cases of inflammation of the pleura lining the diaphragm and base of the lungs, and confined to that spot. In none of them was there the Risus Sardonicus: Some had hiccough with vomiting; others not: the symptoms were fix-

ed pain along the lower margin of the chest, increased by pressure or motion: respiration was performed by the ribs alone, and the patients, to relieve their breathing, sat up in bed, and leant forward on the abdomen. Two of them had involuntary twitches of the muscles of the face, and several had delirium, more or less violent. Neither percussion nor the stethoscope were of any use. The disease is to be distinguished by the fixed pain increased on pressure, and by costal respiration. It cannot be doubted, that this partial inflammation of the pleura, when on the right side, has been mistaken for hepatitis; and in one of Andral's cases, there was sympathetic icterus. In another, the sero-purulent fluid burst into the abdomen, through a hole in the diaphragm.

344. Partial inflammations of the pleura often occur in the portions of the membrane lining the fissures between the lobes of the lungs. These have often been mistaken for real abscesses of the pulmonary tissue, because they have seemed to be in its very substance.

346. & 7. As we have before remarked, the suppuration of the lungs is of a peculiar kind, and very different from Dr Cullen's idea of it. The matter is not collected into an abscess: it is diffused through the inflamed part, and gives them a greyish mottled appearance. What is commonly thought to be an abscess of the lung, is the effect of the irregular suppuration of tubercular matter. Gangrene of the lung is one of the rarest morbid alterations to be met with in the dead body, as the effect of inflammation. However, I have seen a large part of one lobe reduced by gangrene to the state of a brown soft pultaceous mass, horribly fœtid. It is commonly partial, and confined to a very small extent. When it exists in the interior of the lung, large cavities are found, analogous to the tubercular caverns: when near the

surface, there commonly is established a communication between the bronchi and cavity of the pleura, and this latter becomes filled with air, and dilates, as in pleurisy, from which the accident is to be distinguished, only by the tympanitic sound of the chest in percussion. I have seen this take place in two cases, in a boy and in a woman: both very soon terminated fatally. I was enabled to recognise them during life by a pathognomonic symptom, the gangrenous fœtor of the breath, and sputa. Laennec thinks, and from what I have seen I completely agree with him, that gangrene of the lungs is not the effect of too violent inflammation, but that it is analogous to carbuncle, the result of a primitive and peculiar disposition. Dr Cullen's termination, by effusion of blood, is the disease going on to hepatization.

347-8. What I have before quoted from Andral, on the subject of expectoration, will, I hope, prevent the reader from falling into the mistakes that might be noticed in these paragraphs, written at a time when Pathology was in its infancy, and when correct or extensive views were not to be expected, even from the most accomplished Physician of his age and nation.

352. The prognostics mentioned by Dr Cullen are hardly sufficient to guide our opinion on the probable termination of the disease. They are founded entirely on the consideration of the general symptoms, which depend, not only on the extent of the morbid alteration, but also on the constitutional peculiarities of the patient. We can never form even a probable opinion from the state of the cough, pain, and difficulty of breathing; for, as I have already observed, these are often moderate in a very extensive disease, and severe in one very circumscribed. We must, therefore, avail ourselves of the assistance of percussion and the stethoscope; and judge the case favourable or otherwise, according as

less or more of the substance of the lungs has passed into the state of hepatization; the danger being, in general, proportioned to the extent of the disease. But we must also attend to the general symptoms; for some die with comparatively little organic lesion, while others recover, in whom a very great portion of one lung, or even of both, had been affected.

353. From data furnished us in the excellent work of M. Andral, there would appear to take place in pneumonia a tendency to observe the critical days. Thus, of one hundred and twelve cases, fifty-nine terminated on the fourth, seventh, eleventh, fourteenth, and twentieth days; of these, twenty-three took place on the seventh; of the non-critical days, the tenth is the most remarkable, for ten cases terminated upon it. These hundred and ten cases I presume to have been fatal, because the author does not say the contary; and it must be quite impossible, in so slow a disease as pneumonia often is, to ascertain exactly the precise day of resolution.

356. The disease often lasts much longer than the period here assigned, without suppuration taking place. This prolongation of the case may depend on repeated slight relapses of inflammation; or on the length of time necessary, in consequence of the weakness of the patient, to restore the hepatized lung to its original condition. The mere continuance of the disease should not alarm us. Some cases have done well, which have been protracted to the thirtieth or even fortieth day. When pneumonia is primary, however, it generally terminates before the twentieth; but it may be indefinite in its duration, when symptomatic, and depending on the development of a crop of tubercles.

366-7. The solution of the disease in no case is to be

trusted to the expectoration, which is not to be considered in the light of an evacuation. Copious sputa are the effect, not the cause, of a diminution of the inflammation. As Dr Cullen has remarked, bleeding does not stop expectoration; on the contrary, promotes it, for reasons we can very well understand. In the very first stage of the disease, and when it is very severe, the secretion of the mucous membrane of the bronchi is suppressed: a copious bleeding, therefore, by which the inflammation is lessened, is the best means of promoting it; and venesection in the beginning of the disease is, as many authors have noticed, an excellent expectorant.

371. M. Laennec has, in the second edition of his work, given some most valuable information, relative to the employment of tartar-emetic, in repeated doses, in pneumonia. He confesses that he learnt the practice from the founder of the new Italian doctrine of fever, Rasori. As the information is of the highest interest, I shall translate the passages which are chiefly worthy of notice.

The moment (says he) I recognise a peripneumonia, if the patient be able to bear bleeding, I cause from eight to sixteen ounces of blood to be drawn from the arm. I have very seldom to repeat the operation, except on subjects attacked with disease of the heart, or threatened with apoplexy or cerebral congestion. I have several times, and very rapidly, cured cases, without even having recourse to bleeding at all. But, in general, I do not like to deprive myself of so powerful an agent, except in cachectic debilitated subjects, and I know M. Rasori acts in the same manner. I look on bleeding as a means of making a strong temporary impression on the inflammatory action, and of allowing the tartar-emetic time to act. Immediately after the bleeding, I give the first dose of tartar-emetic, consisting of one grain, in two ounces and a half of a weak infusion of orange flowers, sweetened with half an ounce of syrup. Every

two hours the dose is repeated till the patient has taken six, when he is left to repose for seven or eight hours, if there seems nothing urgent, and if he feels inclined to sleep. But if the disease has made some progress, if there be great oppression, if the head be affected, if the two lungs be attacked, or if one of them is so in its whole extent, then I continue the tartar-emetic, without any interruption, every two hours, till there is an improvement of the symptoms, ascertained by the stethoscope. Sometimes even, when most of the circumstances just mentioned occur together, I give the mineral in the dose of a grain and a half, or two grains, or two grains and a half, but always in the same quantity of liquid.

Many patients support the tartar-emetic given in this way, without experiencing any purgative effect. The majority of them, however, vomit twice or thrice, and go five or six times to stool in the course of the day. But the following days the evacuations are very moderate, and often there are none at all. As soon as the tolerance of the medicine is established, (as Rasori expresses himself,) it often happens that the bowels are so far constipated, as to render necessary the use of purgative injections.

When evacuations take place the second day, or when, from the first, there is reason to fear that the medicine is not well borne, I add to the six doses which must be taken in the twenty-four hours, one or two ounces of syrup of diacode, (a weak opiate syrup,) a combination contrary to the theoretical ideas of Rasori and Thommasini, but one which experience has convinced me is very useful. In general, the effect of the tartar-emetic is never more rapid nor more heroic then when it produces no sort of evacuation: sometimes, however, the amendment of the symptoms is attended with a general sweat. Although copious alvine evacuations and frequent vomitings are to be dreaded, on account of the debility, and of the hurtful irritation of the intestinal canal

which they may produce, yet I have cured several remarkable cases in which there were most copious discharges.

I have rarely met with pneumonic patients who could not bear the tartar-emetic, and these occurred in my first trials of it, so that it was probably owing to my inexperience, to the want of confidence on the part of the Physician, rather than to the plan of cure itself. Often, at the present day, when a patient has borne but indifferently six grains of tartar-emetic combined with opiate syrup, I have given him next day nine grains with perfect success. At the end of twenty-four, or of forty-eight hours at the utmost, often in two or three hours, we obtain by this plan a remarkable improvement of all the symptoms. Sometimes even, a patient apparently doomed to death, at the end of a few hours, is out of all danger, without having had any crisis or evident evacuation, or indeed without any notable change except the progressive and rapid amelioration of his condition: and the examination by the stethoscope finds the reason of the change in the appearance of all the physical signs of resolution.

These decided effects may be obtained at all stages of the disease, and even when a great part of the pulmonary tissue

is the seat of purulent infiltration.

From the instant that we have brought about even a very slight improvement, we may be sure that by continuing the medicine the resolution will be completed without any new difficulties; and it is in this particular that there is the greatest difference between bleeding and the use of tartar-emetic. By means of the former, we obtain generally a diminution of the fever, oppression, and bloody expectoration, which makes the patient and the bystanders believe that the convalescence is at hand; but at the end of a few hours these symptoms are renewed with violence, and the same thing takes place five or six times after each repetition of the bleeding. I may affirm, on the contrary, with confidence, that I have never seen a similar aggravation of the symptoms, un-

der the influence of the tartar-emetic. It must however be remarked, that when once the patient is fairly convalescent, the progress of the resolution appears to be retarded, at least according to the stethoscopic signs; for, from the time when the patient feels his strength and appetite return, to the period when the stethoscope shews no longer any remains of pulmonary congestion, there is often a much longer interval, than between the beginning of the disease and that of the convalescence: but the same remark is still more applicable to the disease when treated by blood-letting. Cases treated by the tartar-emetic never experience that long and extreme debility so often the effect of pneumonia cured by repeated bleedings.

The best mode of estimating the value of any method of treatment is to judge by the results. On this subject I have kept exact notes only since last year. But I can aver, that I do not recollect, in any preceding year, to have seen perish a single pneumonic patient, who had taken the medicine long enough to be fairly under its influence. I have only seen some patients sink, who were attacked at one and the same time with a slight pneumonia and severe pleurisy. We shall see, by and bye, when treating of this latter affection, that tartar-emetic has very little effect upon it, after its first very acute stage. I have seen also some patients die who had, besides, cancer, tubercular phthisis, or some severe disease of the heart, &c.; and it was those cases especially that afforded me an opportunity of seeing the resolution of pneumonia in its different stages. Finally, I have lost some patients who were brought to the hospital in extremis, and who died before taking more than two or three grains of the medicine.

In the course of the 1824, I treated, in the Clinical Hospital of the Faculty, twenty-eight cases of pneumonia, either simple, or complicated with a slight pleuritic effusion. All these patients were cured, except a cachectical old man of

seventy, in a state of dementia senilis, and who took vers little tartar-emetic, because he bore it ill; and yet the most of these cases were very severe. In this present year I have treated thirty-four, of which five have been fatal; but we must exclude from the number, two women, one of fifty-nine, the other of sixty-nine years of age, both brought to the hospital at the point of death, where they expired in a few hours, and in whom there was hardly time to administer two or three emetic potions. The third subject was a young man affected also with disease of the heart, which proved fatal during his convalescence from the pneumonia. The fourth was cut off by chronic pleurisy, during the resolution of a subacute pneumonia. The two first, therefore, need not be counted; the two last are rather proofs of successful treatment. There still remains an old man of seventy-two, cut off on the tenth day of the disease, by determination to the head; so that of a sum-total of fifty-eight patients, two septuagenians only have died of this disease, joined to congestion in the brain. That is something less than one in twentyeight.

In civil practice, for the last three or four years, I have hardly been sent for to acute cases, or uncomplicated with intense pleurisy, except when death seemed just at hand; and I do not recollect of any case which was fatal in spite of the use of tartar-emetic, except an old man of seventy-two, whom I visited along with M. Juglar. He too had determination to the head, which proved fatal on the third day. In opposition to this, I might mention other cases where the patients recovered under seemingly hopeless circumstances. Equally happy results have been obtained by other practitioners.

I continue the use of the tartar-emetic as long as the tolerance of it lasts, and as long as the crepitating rattle continues. I see daily the tolerance last an indefinite period in convalescents, who have regained their strength and appetite. This fact

is an answer to the theory of Rasori. If the information I have received on this subject be correct, he believes that the tolerance is owing to the excess of stimulus present in the system, and which is the cause of the disease, and that as soon as this excess is destroyed by the contra-stimulant effect of the tartar-emetic, the tolerance also, according to him, should cease. It is true, that sometimes after the acute stage of a pneumonia, the tolerance diminishes, or ceases entirely; but it is still more common to see the patient become accustomed to the medicine, to such a degree, that during convalescence, and when the patient has come the length of eating as much as a man in health, he may take six, nine, twelve, or even eighteen grains of tartar-emetic, in the course of the day, without being aware of it. Laying aside all theoretical ideas, I agree with M. Rasori, that, in general, the tartar-emetic is borne better in proportion as the effects are more decided, and as the symptoms and constitution of the patient indicate an excess of plethora or vital energy; but I must remark, that the same means often succeed in debilitated subjects who cannot stand blood-letting, in spite of intense local inflammation. On comparing together the facts I have seen, it seems to me evident, that the tolerance depends on several circumstances. In the first place, tartar-emetic, in doses somewhat large, does not produce vomiting so easily as small doses, a fact observed by all practitioners. Secondly, habit, by which the stomach becomes accustomed to all sorts of substances, is very soon acquired for the one in question, as some vomiting, or a few liquid stools, happen generally the first day, and hardly ever the second. A third condition, which has the effect of making vomiting still more difficult, is the administration of the tartar-emetic in an agreeable medium, aromatic, and pretty dilute. The interposing of two hours between each dose has also a tendency to produce the same effect. I have often produced vomiting in abundance by means of two grains of tartar-emetic dissolved in three glasses of tepid water, with a quarter of an hour between each dose of the solution; the following, and the ensuing days, I have given the salt in the dose of six or nine grains, in the manner explained above, without causing any evacuation.

The counter-indications of tartar-emetic, as of every means of cure, ought, in my opinion, to be founded on experience alone. The first of them is undoubtedly the want of tolerance, shewn by too copious evacuations. Besides, we meet with a certain number of diseases which appear to be of as inflammatory a nature, and as active as those I have hitherto spoken of, but which nevertheless do not yield to tartaremetic even when it is extremely well borne. Hæmoptysis is one of these. It is the same with apoplexy, gout, erysipelas, and the greater number of chronic inflammations, a few of the latter excepted, which have passed through the acute stage. I have seen cases of these diseases, in which nine or even twelve grains of tartar-emetic were perfectly well borne, without any evident effect on the symptoms. On the other hand, acute rheumatism of the joints, with effusion, often yields in the course of a few hours to this medicine, and the effused fluid is very rapidly absorbed.

See Laennec, sur le Traitement de la Peripneumonie, 1st vol. 2d edition.

These observations of the above most sagacious practitioner are worthy of the deepest attention. I know them to be quite correct, from the testimony of eye-witnesses of his practice,—young English Physicians, who required repeated proofs before they could believe in the possibility of any acute inflammation being arrested without the use of the lancet and purgatives. The tartar-emetic, if it performs only one-half of what Laennec promises, will be a valuable addition to our therapeutic means, especially in the cases of old debilitated subjects, in whom bleeding is inadmissible. The

above practice is certainly very different from that of Dr Cullen and others, nay diametrically opposite to it. Their object was to excite nausea; and they supposed the substance was useful, only in so far as it produced this effect, and the debility consequent on it: the French leave off the tartaremetic whenever the nausea is followed by long or severe vomiting, and find it most successful when the patient experiences no sensible effect from it. They therefore administer it as a direct sedative.

375. The exhibition of opiates in pneumonia is very common in the practice of the Royal Infirmary here, where it was introduced by Dr Hamilton senior, the distinguished author of the Treatise on Purgatives, and has gradually been adopted by the Physicians of this place. Opiates, however, are not employed late in the disease, or by themselves: they are rather used as adjuvants of bleeding at the very commencement of the attack. With this view, a full opiate, forty or fifty drops for an adult, may be given immediately after a large bleeding. It will render the pulse slow, soft, and full, allay the cough, promote a gentle diaphoresis, and procure sleep, from which the patient often wakes in a perfectly tranquil state. Costiveness must be guarded against by the timely exhibition of castor oil. Opium given in this way renders bleeding more effectual; and it may be given in all acute inflammations, as well as in the pleurisy and pneumonia.

376-7-8, &c. Peripneumonia Notha.—This disease occurs with the general symptoms of pneumonia, mixed with those of catarrh, as we learn from the descriptions of authors. But I am doubtful if the complaint is to be considered as an inflammation of the lungs, and entitled to the appellation of Peripneumonia Notha. It has much more the character of an acute affection of the smaller branches of the bronchi,

with perhaps a slight degree of inflammation of the pulmonary tissue, from continuity of texture. The few cases of the complaint I have seen were certainly affections of the bronchi, occurring in old debilitated subjects, in whom bleeding was not practicable, and who, therefore, were cut off in a few days. In doubtful cases, the stethoscope and percussion, together with the examination of the sputa, will afford a certain diagnosis.

383. Pericarditis.—Of late years, this affection has excited considerable attention, and many cases of it have been published. The disease, as Dr Cullen has remarked, often coincides with a pleurisy, but is frequently a separate and independent affection. Seated in a serous membrane, it presents the usual appearances incidental to the inflammation of these,-redness, effusion, partly solid and albuminous, partly sero-purulent. When resolution takes place, the fluid is absorbed; and of the albuminous matter, so much only remains, as to cause membranous adhesion, either general or partial. The quantity of effusion is very various; sometimes only a few ounces, at other times the pericardium is enormously distended, and the diaphragm pushed down into the abdomen. The affection may be either acute or chronic. It is generally confined to the serous surface: it rarely extends to the sub-serous cellular tissue; and has not been seen above twice or thrice in the muscular substance of the heart. In some rare instances, in place of the usual product of inflammation, blood is effused from the inflamed vessels.

The symptoms of this disease are often exceedingly doubtful. British practitioners, in general, decide on its existence whenever they observe severe thoracic symptoms, with fluttering pulse, and palpitation of the heart, supervene upon a rheumatic affection. The same symptoms, however, are seen in many cases of pleurisy, so that these two complaints are often confounded together. From percussion, we derive assistance only when the pericardium is greatly distended; the stethoscope is quite useless; and irregularity of pulse, with palpitation, occur in so many affections of the thoracic viscera, that they are not to be trusted to as diagnostic signs. Besides, many patients have been found, after death, to have been affected with the disease, who had made no complaint of the heart during life. What follows is the candid confession of Laennec on the difficulty of the diagnosis, the truth of which will be confirmed by every experienced practitioner. I have, says he, often supposed pericarditis present when it did not really exist; and I have often missed finding it when it was present; and I have seen the same mistakes committed by the most skilful of my professional brethren. I have seen lucky guesses, and been myself sometimes right; for I do not think we can make use of the term discover, when there are no certain symptoms, and when, of course, we must be as often wrong as in the right. This is the result of all my experience hitherto on this subject. Several of my friends, and among them M. Recamier, have come to the same conclusions.

Corvisart attributes the difficulty of detecting pericarditis to its being always combined with pleurisy, pneumonia, or other affections of the chest, which obscure its symptoms. These complications indeed, which are very common, may have this effect, judging from reasoning alone, and the calculation of chances; but I can declare, that the most obscure cases I have ever seen were in subjects, all whose other thoracic organs were quite sound, and who had died of diseases of the abdomen, either acute or chronic. These facts, and many others, would seem to prove, that inflammation of the pericardium is often not a very severe affection, and that its influence on the constitution, and on the circulation, is comparatively trifling; while, in other cases, the same affection to the same, or even a less extent, is ac-

companied with acute fever, disorder of almost all the functions, severe enough to put the life of the patient in the utmost danger.

Laennec, Op. cit. 2d vol. p. 65-960.

What, then, it may be asked, are the symptoms of pericarditis? We must answer, that there are none on which we can perfectly rely: we must attend to the general symptoms of thoracic disease, and if neither percussion nor the stethoscope show the lungs or cavities of the heart to be affected, we must suspect an inflammation of the pericardium. Thus, if the patient complain of great difficulty of breathing, pain of left side, with fever, and perhaps irregularity of the pulse, and if we do ascertain that the lungs and pleura are sound, as well as the cavities of the heart, then we must have recourse to pericarditis to explain the symptoms, and treat the patient with vigour, proportioned to the importance of the affected part. But, of course, we must expect to be often mistaken, particularly in those cases where the affection is latent, and attended with little or no disturbance, either local or constitutional.

384. Gastritis.—Some of the opinions of Dr Cullen are exceedingly accurate; but others we are enabled to correct, in consequence of the great improvements in morbid anatomy. I fear we cannot admit the distinction into two species,—the phlegmonous, and the erythematic. The former has never been seen by any observer; there is never matter formed between the coats of the stomach; and the latter is only a variety of the common inflammation. We are sure that gastritis has its seat in the mucous membrane, and submucous tissue; and its varieties are the acute and chronic.

According as the inflammation is of one kind or the other, the organic changes seen after death are different. In the acute inflammation, such as is the consequence of caustic or

acrid poisons taken into the stomach, the affected mucous membrane is highly injected with blood, and varies in hue, from a vivid red to a dark brown: there is commonly ædema of the submucous tissue, and we shall see in it large blood vessels going to the part inflamed, to supply it with capillary branches. The mucous membrane itself is soft and pulpy, readily separates in patches from the subjacent parts; or it is completely detached, and has left numerous small ulcers with irregular edges. Occasionally the membrane is actually in a state of gangrene. Sometimes the ulceration is confined to the mucous coat; sometimes it extends to the others; the peritoneum only may form its boundary, or it may even extend to the latter, and cause effusion of the contents of the stomach into the cavity of the peritoneum. Thus, the general effects of acute inflammation are redness of the membrane, softening, friability of it, ulcerations more or less extensive and deep; irregular, and sometimes gangrenous spots. In the chronic form there is found redness, commonly less intense than in the preceding, thickening of the mucous membrane, and greater tenacity of it than natural; often ulcers, but these are commonly more regular, and have edges tumid and everted. All these appearances are commonly most conspicuous at the great extremity of the organ; but they may occur near the pylorus, or along the curvatures from one end to the other. In slight cases, only redness is seen; and these are most embarrassing, for it often becomes extremely difficult to determine, whether that redness is really morbid, or only a post mortem appearance, such as is often met with from the mere position of the body, and the languid circulation in the last hours of life. Often we shall be quite unable to decide; but as a general rule, we should attend to the texture of the suspected part, and the state of the submucous tissue. If the latter be ædematous, and the former soft and friable, we can have no doubt as to the existence of inflammation. Where

neither of these states occur, but only redness, we must be in great doubt; and accordingly the greatest differences of opinion often exist in medico-legal cases, where the truth must be sworn to, one way or other. In chronic cases, we do not find only marks of chronic inflammation: some parts are often affected with the acute form, and exhibit traces of it; and we shall be generally correct in our diagnosis, if we judge those parts acutely inflamed where the membrane is softer than natural, and those to be affected with chronic inflammation where it is firmer.

Dr Cullen has described the acute and very severe form of gastritis merely. The symptoms of it are extremely well marked and decisive. The chronic gastritis, however, is a most insidious affection, and often quite devoid of pathognomonic signs. Yet it is of the utmost importance that it should be diligently studied; for there can be no doubt that it is one of the most common causes of dyspepsia, and demands a peculiar mode of treatment, very different from the stimulating plan too commonly pursued in that disease. It is also the cause of various anomalous local affections, as Mr Abernethy long ago pointed out in his admirable Treatise on the constitutional origin and treatment of local diseases. Besides, gastritis, combined with inflammation of the mucous membrane of the intestines, the Gastro-Enterite of the new French School, is said to be the cause of all febrile disorders whatsoever; and as these notions are extensively followed in France, have in some degree had admirers in England, and are certainly highly ingenious, I shall consider them here at some length.

The opinions of M. Broussais on the subject of Gastro-Enterite are nowhere detailed by himself in regular order: they are to be gathered from different parts of two publications, from each of which I shall make some extracts. His first work is entitled, *Histoire des Phlegmasies*, ou Inflammations Chroniques, 2 vols 8vo, Paris 1808. His ob-

servations were made in military hospital practice in different countries, and are sufficient to prove his great position, viz. the great frequency of latent chronic inflammations, particularly of the alimentary canal; and the necessity of paying great attention to them in the treatment of diseases. But he does not present his views as a corps de doctrine: he merely examines the different inflammations, assigns to each its peculiar anatomical characters, symptoms, and treatment. His second work, Examen des Doctrines Medicales, Paris 1821, 2 vols 8vo, is the fruit of the former, matured by long meditation, reading, and a much more extensive experience. Its main object is to show that the nature of fevers has been quite misunderstood; because authors had, before him, paid little or no attention to the state of the mucous membrane of the stomach and intestines, and therefore could not be aware that fever is nothing more than inflammation of that part, with different symptoms, according to the constitutional peculiarities of the patient, and according as the inflammation is repeated by sympathy in more or fewer parts. The introduction to this work consists of physiological prologomena, in which the author explains his opinions in the form of Aphorisms; and his criticism of different nosological systems is founded entirely on these. Here follow some of the principal propositions, which M. Broussais has emitted, and which include the most important bases of his physiological doctrine.

PROP. LXXXIV.

Irritation (morbid) may exist in one system, without any other sharing in it; but that takes place only when it is slight in degree. It then acts only on the organic motions of the part, and on its nourishment; but as soon as the local irritation is increased to a certain point, it is repeated in other organs and systems, more or less remote, but without any change in its nature.

LXXXV.

The nerves are the only agents of the transmission of irritation; a process which constitutes the morbid sympathies. These then take place in the same way as sympathies in health, with this difference, that in disease the nerves transmit more irritation, or a mode of excitement at variance with the vital laws.

LXXXIX.

The severity of the disease is always in proportion to the number and activity of the sympathies called into play.

XCIX.

When in consequence of irritation, there is accumulation of blood in a tissue, with swelling, redness, and unusual heat, sufficient to disorganise the part irritated, the term Inflammation is applied to such a combination.

C.

Local pain is not inseparable from inflammation, even the most intense.

CII.

Inflammation often excites more pain in parts sympathetically affected, than in its own primary seat. The inflammations of the mucous membranes of the stomach and small intestines, and of the bladder, present daily examples of this.

CX.

Intense irritations of every organ are uniformly transmitted to the stomach at the very commencement; hence ensue loss of appetite, change in the colour of the tongue, and in the mucus of it: if the irritation propagated to the stomach reaches to inflammation, we then have the symptoms of gastritis; and as the brain is then always more irritated, it shews its peculiar sympathies, and may even become inflamed.

CXI.

All intense irritations of any organ are transmitted to the vol. 1. 2 G

heart; then its contractions become more rapid, the circulation is quickened, and the increased heat of the skin gives rise to painful feelings. This is what is commonly called Fever, considered in general, and in the abstract.

CXIL

Fever is always the consequence of the irritation of the heart, either primary or consecutive.

Every irritation, severe enough to cause fever, is one of the shades of inflammation.

CXXX.

The inflammation of the inner, or mucous membrane of the stomach, is termed Gastritis; but its existence is never proved in the dead body, but along with that of the small intestines. It is better, therefore, to give it the name of Gastro-Enteritis.

CXXXI.

Inflammation of the mucous membrane of the small intestines is termed Enteritis. It is sometimes seen alone; but we can never be sure of this before the examination of the body, and it always begins by gastritis. Hence it is proper to call it also Gastro-Enteritis.

CXXXII.

Gastro-Enteritis has two forms; one with predominance of gastric, the other with that of enteritic symptoms. Pain of stomach, refusal of food, or vomiting of ingesta, are the characters of the former. The power of satisfying thirst, the rapidity with which fluids are absorbed, are the symptoms of the latter. All other symptoms are common to the two.

CXXXIV.

Colic, frequent stools and tenesmus are the symptoms of inflammation of the mucous membrane of the colon.

The term Enteritis being devoted to the inflammation of the small intestine, may not be extended to the colon: we must call the latter Colitis. But the two mutually succeed each other, or are combined together.

CXXXVI.

Gastro-Enteritis may exist without any painful spot, when the inflammation is not severe in the stomach or duodenum, and pressure on the abdomen does not cause pain.

CXXXVII.

Gastro-Enteritis is recognised by the symptoms it develops. 1st, Organic; viz. redness and heat of the openings of the membranes, and of the skin; alterations of the biliary, urinary, and mucous secretions. 2d, Relative; viz. pain of head and in the limbs, aberrations of the intellectual faculties. The influence on the heart is common to many other inflammations.

CXXXVIII.

Cases of Gastro-Enteritis, as they grow worse, end in stupor, fuliginous mouth, lividity, fœtidity, prostration of strength, and represent what have been called Putrid, Adynamic, or Typhus Fever: those in which the irritation of the brain becomes considerable, with or without inflammation, produce delirium, convulsions, &c. and take the name of Malignant, Nervous, or Ataxic Fevers.

CXXXIX.

All the essential or primary fevers of authors may be referred to Gastro-Enteritis, either simple, or complicated. They have all been mistaken in their notions of the latter, except when it is attended with local pain; and even when they met with pain, they looked upon it as accidental.

CXT..

Authors have sometimes said, that certain fevers depended on an inflammation of the digestive organs; but they have never said, that the pretended primary fevers can have no other cause; never, that they were formed in the same way as the fever of pneumonia, &c.; never, that there are no

This was not hinted at before the publica! primary fevers. tion of the physiological doctrine.

Authors, not knowing that the inner membrane of the small intestines may be inflamed without local pain, have all of them referred to Enteritis the symptoms of Peritonitis.

CXLII.

It is by a Gastro-Enteritis, the first effect of any contagious agent, that the Variola commences. Inflammation of the skin is substituted for, and terminates the former, when the pustules are few in number. But the inflammation of the skin, when the pustules are numerous, regenerates that of the mucous membrane, in consequence of the erysipelas occasioned by the influence of the areolæ. This is the nature of the secondary or maturative fever of Small-pox.

CXLIII.

Measles and Scarlet Fevers are formed in the same way. They begin by Gastro-Enteritis, and the degree of it is the measure of the danger of the case.

The majority of Dyspepsias, Gastrodynias, Pyroses, Cardialgias, and all the Boulimiæ, are caused by Chronic Gastro-Enteritis.

Dropsy in patients who have habitually taken too much spiritous liquors, and too frequent purgatives, is the effect of a Chronic Gastro-Enteritis, which has extended to the whole thickness of the alimentary canal, and to the liver, and which has slowly spread to the peritoneum.

CLXVIII.

I have never seen tubercles in the lungs without preceding inflammation. Those even of new-born children do not seem to me independent of this process. CLXIX.

Tubercles form in all constitutions attacked with chronic

inflammation of the lungs or intestines; but they are of larger size in subjects predisposed to irritations of the lymphatic system.

CCXVII.

Irritation is naturally intermittent in the healthy state.

CCXVIII.

Morbid irritation also may be intermittent in all the organs and systems of the body.

CCXIX.

Morbid irritation may be continuous in a part at a certain degree, and be periodically exasperated, and afterwards return to its former state. In these cases, when it is moderate, it excites few sympathetic actions; when it is severe, it calls many into play. These cases form the Remittent and Subintrant Fevers, &c. of authors.

CCXX.

Intermittent and remittent irritations are always attended with increased sensibility and contractility, and consequently with congestion, either in the primary seat of the disease, or in parts sympathetically affected.

CCXXI.

Intermittent and remittent irritations change their places, and terminate spontaneously by critical metastases. If they do not change their place in this manner, they become continued, either in the acute or chronic form.

CCXXII

Intermittent and remittent fevers are cases of periodical Gastro-Enteritis; but the brain and the other viscera are irritated by sympathy, just as in continued fevers, and may also become the chief seat of irritation, and inflame periodically or in a continuous manner.

CCXXIII.

Every regular paroxysm of intermittent fever is the commencement of a Gastro-Enteritis, the irritation of which has been transferred to the exhalants of the skin, where the crisis takes place: if the irritation does not completely change its place, the fever is remittent; if not at all, the fever then becomes continued.

The masked fevers of authors are periodical irritations of different systems or organs, external or internal, but in which the heart is less acted on, and the general heat little or not at all increased.

CCXXV.

Fevers called Pestilential differ from other kinds only by the severity and danger of the congestions which take place in them.

CCLXIII.

There are four kinds of means of arresting the progress of inflammations, -debilitating revulsives, tonics, stimulants, more or less diffusible.

CCLXIV.

The debilitating means are, bleeding, abstinence from food, emollient and acidulated beverages; but bleeding is the most effectual.

CCLXV.

Bleeding from the large vessels is suited to great congestions of blood suddenly produced, under the influence of irritation, in parenchymatous textures; bleeding from the capillary vessels as near as possible to the chief seat of irritation, that is, from the skin over the inflamed part, should be preferred in all other cases, while the disease is still recent.

CCLXXIV.

Leeches to the epigastrium are more effectual in gastritis than when applied to the anus. The latter situation, however, is to be preferred in colitis or dysentery.

CCLXXIX.

As jaundice depends almost always on Gastro-Duodenitis, or on inflammation of the liver, it may be removed by leeches applied between the epigastrium and hypochondrium, provided we continue the use of emollient drinks, and a suitable regimen.

CCLXXXVII.

Emetics cure cases of Gastro-Enteritis only in consequence of revulsion and the critical evacuations they produce: their effect, therefore, is uncertain in slight cases; and in severe ones they are dangerous, because they never fail to aggravate the inflammation, if they do not succeed in carrying it off. It is the same with purgatives; but those which are bitter rather increase morbid heat, while the saline diminish the inflammation by rendering it chronic. Such is often the effect of calomel and the neutral salts, which allay the sufferings in Gastro-Enteritis only by causing diarrhæa, which terminates either in marasmus or dropsy.

CCXCI.

When the sensibility and irritability of the stomach are very much increased, all stimulants hurt, and precipitate its functions to such a degree as to annihilate them. This is the case in the most severe forms of gastritis, cholera morbus, yellow fever, &c.

CCXCII.

As the excessive irritability of the stomach does not always shew itself under the form of pain, or vomiting, but rather by violent fever, delirium, stupor, and convulsive motions, these sympathetic affections should be sufficient to make the practitioner desist from the use of stimuli.

CCXCV.

Chronic inflammation of the stomach, increased by stimuli taken in, is exceedingly dangerous, if it be too intense to be driven to another part in the way of revulsion; for it runs the risk of passing into disorganization. Hence we explain the occasional cures and exasperations of chronic gastritis by the use of mineral waters. The irritation which these transfer to the lungs, brain, or extremities, is often changed into mania, apoplexy, phthisis, or gout.

CCXCVII.

In the partial inflammations of the stomach, several years often elapse in alternate states of excitement and depression, in consequence of changes in the treatment, until disorganization of the viscus takes place, either by scirrhus, or by softening and ulcerating through the coats of the organ.

CCXCVIII.

Partial irritations of the stomach may be cured by persisting in abstinence from tonic medicines, while, at the same time, we permit the use of sufficient aliment to support nutrition, taking care to choose it from mild unstimulating substances. We must also be careful to allay the irritation, which comes on at the end of the process of digestion in the stomach, by mild demulcent fluids. The cure may sometimes require years for its completion; but it is the only one that will be lasting, and may succeed though a certain degree of disorganization have taken place.

Hunger, not properly satisfied, may give rise to gastritis; and this latter will be followed with the usual sympathies.

CCCVII.

He who knows not how to control the irritability of the stomach, will never be able to treat any disease. The perfect knowledge, therefore, of Gastritis and Gastro-Enteritis, is the key to Pathology.

CCCIX.

Acute inflammations of the liver at their commencement may be removed by local bleedings, which have an effect on the concomitant Gastro-Enteritis. This complication renders the use of emetics more dangerous than advantageous.

CCCX.

Chronic hepatitis may sometimes be palliated by emetics, purgatives, calomel, or soapy medicines; but it is rarely cured by any other means than perseverance in the demulcent regimen, and by issues of various kinds placed near the affected part.

CCCXII.

Peritonitis in its first stage is easily removed by leeches to the parietes of the abdomen; but when it has lasted for several days it is often beyond all remedy. General bleeding rarely cures it.

CCCXIII.

Puerperal fever, as it is commonly the consequence of inflammation of the uterus, should be arrested at its outset by leeches to the hypogastric region. It is often much aggravated by emetics.

CCCXVII.

Typhus fevers, being nothing but cases of Gastro-Enteritis produced by miasmata, that is, by putrid gases, often complicated with other inflammations, especially those of the head, may be cut short by the treatment peculiar to those affections, if we attack them at their outset.

CCCXVIII.

When the inflammation of typhus is not opposed at its outset, bloodletting is often dangerous; for the gaseous poison weakens the vital principle, and the vital chemistry, to such a degree, that the loss cannot be repaired.

CCCXIX.

The prodigious exaltation of the vital actions is the most powerful cause of their subsequent depression, and heat is the agent most suited to occasion the former. It is for this reason that the typhus of warm climates, where putrid gases are most poisonous, is more dangerous than any other, and kills strong subjects more speedily than those who are weak. We may therefore conclude, that cold is more effectual in these than repeated bleedings; but it must be employed in the outset, immediately after the bleedings, and internally as well as externally.

CCCXXVII.

When acute Gastro-Enteritis, with or without typhus, resists the use of leeches applied to the epigastrium, and afterwards to the chest or head in case of the inflammation being repeated in these cavities; when blackness of the mouth, stupor, and weakness of the pulse ensue; we must support the patient with drinks of solution of gum, sweetened with sugar and acidulated: but if the tongue becomes clean, and the appetite returns, we must feed him with milk and water, and then with light soups, otherwise he might die of inanition before the end of the inflammation.

CCCXXVIII.

Nausea and vomiting at the commencement of acute Gastro-Enteritis do not require emetics, but rather leeches to the epigastrium, and hot emollient poultices to the lower extremities.

CCCXXIX.

Constipation in acute Gastro-Enteritis is rather favourable, because it shews that the colon is not inflamed. It requires nothing but an emollient injection daily. Should it persist, and the heat of surface be great, the injection must be administered cold.

CCCXXX.

Diarrhœa in acute Gastro-enterito-colitis is at the first removed by leeches to the anus in proportion to the strength of the patient; but if the prostration be great, and the vascular system bloodless, we must be satisfied with solution of gum in rice-water, starch injections, with a few drops of watery tincture of opium.

CCCXXXIII.

Local bleedings, abstinence and watery drinks, cut short inflammations at their commencement, when they are not very extensive in the viscera; but if several organs are inflamed in a great extent at the same time, as indicated by great uneasiness, prostration and frequency of pulse, we

should evacuate all the blood in the body sooner than arrest the disease. In these cases, the frequency of the pulse continues in spite of the loss of blood. We should then spare this fluid, and confine ourselves to supporting the patient with watery drinks, to which we shall add gum or milk when the black crust disappears from the tongue.

cccxxxv.

Subsultus tendinum and delirium, which supervene in the course of a Gastro-Enteritis, indicate that the irritation is repeated in the brain; and they yield at their commencement to leeches on the abdomen: but if these symptoms have continued some time, they must be combated by leeches to the temples, or rather on the course of the jugular veins, because the sympathetic irritation of the brain has changed into a real inflammation.

> Broussais, Propositions de Médecine, Examen des Doctrines Medicales, 1st vol.

The propositions which we have just quoted embrace the fundamental doctrines of M. Broussais's theory, which his partisans declare to be the most simple and satisfactory that has ever been proposed, and as such entitling its author to the lasting gratitude and admiration of mankind. This is not merely the language of his enthusiastic followers: it is the deliberate opinion of M. Broussais himself. He thinks that the tables of mortality have already given a formal testimony in favour of his doctrines, and that when still further perfected, they will have a more decided influence on population than Vaccination itself.

With regard to the propositions themselves, I think it must be confessed that there is hardly one of them that may not be disputed, and many that must be flatly denied: and though the author is very angry with those who adopt causes of disease not susceptible of demonstration, the Ontologists, as he calls them; yet he himself is exceedingly guilty in

this respect, employs vague terms to which no definite meaning can be attached, and builds many of his theories on these modes of speech. I may instance, in proof of this assertion, the terms Irritation and Sympathy, so often employed by M. Broussais, and the very foundation of his doctrine, terms not employed by him in their usual sense, and with different meanings in different parts of his book. There is not much of his Doctrine Physiologique susceptible of demonstration: it rather consists of a series of assertions in their very nature not admiting of proof. His theory of fever may be here briefly stated, by way of illustration. The great majority of authors, ancient as well as modern, have thought fever an affection of the vital powers in general; either primary, depending on no local cause, and consisting of morbid actions of the system in general, having a salutary tendency; or sympathetic, originating in inflammation of some organ, and terminating with it. Several modern Pathologists have adopted the opinion of the local origin of fevers. In this country they have been thought to depend on inflammations of the brain, and its membranes, and of the spinal marrow. In Germany, fever has been deemed to depend on the inflammation of some part, and has been divided into species, Gastric, Pulmonic, Cephalic, &c. according as the stomach, brain or lungs have seemed most affected. By the favourers of the old opinions, however, such inflammations are considered as Intercurrent, in consequence of irregular distributions of blood, which undoubtedly take place in the course of every fever. But Broussais affirms the inflammation of the mucous membrane of the alimentary canal to be the disease hitherto improperly termed fever; and he maintains the identity of fever and inflammation. Gastro-Enteritis is therefore his name for fever. The symptoms of it are some of them to be referred immediately to the inflamed part, others to various organs affected by smy-

pathy. If the inflammation be severe, and in the stomach chiefly, the patient will be affected with vomiting, nausea, anorexia, and sense of heat in the epigastric region: there will be some increase of pain on pressure, but this latter is rather the sign of peritoneal, than of gastric inflammation. If the disease be more moderate, there will be no vomiting, only a reluctance on the part of the stomach to receive ingesta, and these only of the lightest and least stimulating quality; a great desire for cold drinks; loss of appetite as before, together with redness of the tongue at the point and round the edges. If the small intestines chiefly are affected, together with more or fewer of the above symptoms, there will be costiveness; and diarrhoea is the invariable attendant upon inflammation of the colon. I need not mention the general symptoms of fever: they are the sympathetic symptoms of Gastro-Enteritis, and in number and severity are always proportioned to the extent and severity of the affection of the mucous membrane. They depend on irritations, as Broussais calls them, of the part or organ in which they are seated; and often the irritation becomes increased, and passes itself into actual inflammation. It is for this reason that we have Erysipelas, Pneumonia, or Inflammation of the brain, frequently shewing themselves in the course of a Fever, or Gastro-Enteritis. When a fever is cut short, it is by the inflammation being suddenly subdued. When it terminates by critical evacuation, it is because the latter has relieved the irritation of the mucous membrane of the alimentary canal. A relapse is nothing but a rekindling of the primary inflammation. In the application of his doctrine to the varieties of fever, Broussais does not attach any importance to the division into inflammatory, typhoid, nervous, or bilious; or rather he rejects them all; and Gastro-Enteritis forms, according to him, one class with predominance of inflammatory or other symptoms, according to the degree of the inflammation and constitution of the patient. All fevers are, in their real nature, inflammatory, and become typhoid only because the vital powers become exhausted by the continuance of the disease. As there are intermittent fevers, so is there intermittent Gastro-Enteritis. According as the intermission is more or less complete, the fever is remittent or regularly intermittent. The completeness of the intermission is the effect of the irritation being transferred to the skin from the alimentary canal, and being overcome in the former seat by the sweat, which puts an end to the paroxysm. The contagious exanthemata are also inflammations of the mucous membrane of the intestinal canal, succeeded at a certain stage of their process, and replaced, by inflammation of the skin. This latter always relieves the former, and becomes the substitute for it. In confluent small-pox, a new Gastro-Enteritis is developed, in consequence of the extent of the cutaneous affection. This constitutes the secondary fever.

The treatment of fever, proposed by M. Broussais, is in strict accordance with his theoretical notions. The danger of the disease depends on the number and severity of the affections developed by sympathy with the Gastro-Enteritis; and the extent of the latter, and importance of it, is to be measured by the former, rather than by direct symptoms referred to the part itself. The means of cure are exceedingly simple. Any article that could prove an irritation to the seat of inflammation is to be avoided. Emetics, therefore, are religiously to be abstained from, and purgatives also. Costiveness, however, may be cautiously obviated, by means of emollient glysters. Blood-letting empties the large vessels, and lowers the vital powers of the system, but has little or no effect on the capillaries, and is hardly ever necessary, and may be practised only in young plethoric and very robust subjects. Local bleeding is always proper in the beginning of the disease, and during the progress of it, according to the strength of the subject. Leeches

are to be applied to the pit of the stomach, or to the abdomen, when the stomach and intestines are affected; to the anus when the disease is chiefly in the colon. Thirty, forty, or even twice that number, are to be applied according to circumstances; and the bleeding is to be encouraged by poultices or warm fomentations. Besides bleeding with leeches, the diet must be strictly antiphlogistic. Food of the solid kind, both animal and vegetable, is to be entirely abstained from, till the disappearance of the morbid sympathies; and the return of appetite, with a clean and moist and pale-coloured tongue, indicate the cessation of the Gastro-Enteritis, when panada, weak chicken broth, &c. may be given, but with the greatest discretion. During the continuance of the fever, the patient is to drink plentifully of fluids of the least possible nourishing quality,-lemonade, gum-water, barley water, &c. Purgatives, as before noticed, are hurtful. Emollient injections may sometimes be recommended. For similar reasons, emetics are to be abstained from; they also irritate, and often inflame the alimentary canal. During convalescence the greatest care is to be taken not to increase too rapidly the quantity or quality of the food permitted to the patient. If a relapse take place, it is to be treated precisely as the primary fever.

Such is a short outline of the doctrines of M. Broussais, on the Theory and Treatment of Fevers. I dare hardly criticise them: that is the duty of older practitioners—of physicians who have seen fevers at different and distant periods, and under various climates, and who therefore have some right to form opinions for themselves on the subject of epidemic constitutions, and the variety in the nature of fever in different circumstances. Are fevers always inflammatory? are they always the same? No, say the great majority of candid physicians: they are constantly changing, and require, at different times, very opposite modes of practice. Innu-

merable authorities might be quoted in favour of the varying nature of fever, -authorities of the highest credit on the score of real practical knowledge and freedom from prejudice; -- physicians who have seen whole epidemics differing from each other, and innumerable cases of different kinds of fever in the same epidemic: some epidemics, and some cases requiring the most diligent antiphlogistic treatment, while others were combated in the hands of the same persons by wine, opium and stimuli. In short, among the experienced and unprejudiced, the opinions of Sydenham are received and acted upon, and seem to be established on the very best kind of medical evidence. But another set of physicians assert the identity of fever in all seasons, places and circumstances; it is always and essentially inflammatory; its typhoid symptoms are the result of excess of inflammation, and antiphlogistic treatment is the only one proper, or even admissible. The favourers of this latter opinion are perhaps not entitled to so much credit as those of the former. They are not so numerous, of less experience, and are commonly biassed by some favourite theory of their own. Broussais is a very good example of the party. When he first published his views on the nature and seat of fever, his experience was but small, acquired in little variety of climate, and from the observation of soldiers in hospital, the most disposed of all classes of men to purely inflammatory disorders. He has a favourite theory, too, to defend, which cannot subsist without the previous demolition of the records of past experience. His testimony, therefore, is suspicious; and before we believe it, we must have evidence of a different kind from any he has hitherto offered. We must have clinical reports, and numerical tabular statements, shewing the effect of his mode of treatment on a large number of patients. These we should contrast with reports and tabular views drawn from the practice of some hospital where a different theory directed a different mode of practice; and we should deem that the better theory, and better practice, which gave for their results the fewest deaths, with the speediest recoveries.

Till this kind of clinical evidence is produced, I presume no new theory of fever stands much chance of a favourable reception in this country at least, where we have had so many theories advanced, that our credulity is completely exhausted. British practitioners will not willingly adopt M. Broussais' views: they are at variance with practical results. His notions lead him to condemn emetics and purgatives as highly pernicious. In this country, emetics are given at the commencement of fever, often with the best effects, at least without aggravating the symptoms; and purgatives are administered from day to day with the greatest freedom and proportional benefit. Nothing is more common than to see a fever, which, at first admission into hospital, had a decided typhoid character, become inflammatory and fit for general bleeding, after the operation of one or two purgatives. And those cases in which this class of remedies is too sparingly employed, are uniformly found to prove the most dangerous and the most tedious. The French practice too is inert. 50 or 60 leeches to the abdomen can never have the effect of a general bleeding: they will very rarely cut short a fever, an event that frequently happens after a large venesection; and the cases that have been quoted in different publications, by the followers of M. Broussais, do not shew that his treatment is speedy as well as effectual. In direct opposition to his opinions, in theory as well as practice, I could quote innumerable cases which have done well under a decidedly stimulant plan of cure. Can that disease depend on an inflammation of the mucous membrane of the alimentary canal, which we dare not treat by evacuations, either local or general, but which we cure by wine in large quantities, bark and opium? In the epidemic, which at present rages in Edinburgh, cases of this description are daily VOL. I.

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occurring in the practice of physicians prejudiced in favour of antiphlogistic measures, but who find that some fevers are not only not benefited by them, but positively require a very opposite plan of treatment. Whole epidemics of such fevers have been seen at different periods, whose existence is a very strong argument with the candid against M. Broussais' views. Besides these general arguments, some other special objections might be urged. It is true that the mucous membrane of the intestines is often inflamed; but the degree and extent of it are very various; some cases, with very severe symptoms, having but a slight inflammation, and others, with slight symptoms, a very high and extensive inflammation. In short, the supposed cause is very often disproportionate to the supposed effect. This is attempted to be explained by a peculiar doctrine of the sympathies, which, he says, in some cases, from constitutional causes, are numerous and easily excited, but in others are few in number, and dormant. Like many other explanations, this is no explanation at all, but merely an expression of the fact, and does not in the least remove the difficulty. Besides, the causes of intermittent are the same as of continued fevers: they are both of them dependent on inflammations of the alimentary canal. But have we any intermittent inflammations? Is peripneumony ever periodical, or inflammation of the liver, or kidney, or bladder ?-unless, indeed, we consider as inflammation, merely intermittent disorders of those organs, most commonly the remains of once perfect but ill-cured agues. I would therefore reject this origin of intermittent fevers, because there is no other process analogous to it observable in the animal economy. In fine, the theory of Broussais is hardly to be received, for the following reasons: It is unsatisfactory and incomplete, in as much as the connection between the cause and its effects, through the medium of sympathy, is a mere assertion, not proved by facts, and not probable from general reasoning. It is matter of daily observation, that there is no proportion between the affection of the mucous membrane and the general symptoms of fever. Many fevers are successfully treated by means which could not fail to aggravate an inflammation, viz. wine, opium, and other stimulants. The practical results of the theory are not superior to the old modes of treatment. The practice of Broussais is comparatively feeble and inert, and has not been shewn to diminish either the mortality or duration of fevers.

But let us be just to our foreign rivals. The theory of Broussais, however unsatisfactory it may seem to English physicians, is infinitely preferable to the current French doctrines; and his practice being antiphlogistic, though feebly so, is far superior to the Médecine Expectante, which leaves every thing to Nature, after a slight ill-directed interference on the part of art. For French medicine, therefore, the Doctrine Physiologique is really a great improvement, and we need not wonder that in his own country M. Broussais should have found so many and so zealous admirers. Moreover, in the edifice which he has reared, there are many parts worthy of preservation, though, for the reasons above stated, we reject the doctrine of fever, the foundation of the whole. The account he gives of the state of the colon in dysentery and diarrhœa is certainly correct, and in strict accordance with every-day experience. His ideas of dyspepsia, too, are in many points excellent, and ought to influence our practice in the numerous anomalous affections of the stomach. It is curious in how many places the doctrines of M. Broussais and Mr Abernethy touch each other and are confounded together. Mr Abernethy speaks of disorder of the digestive organs generally; M. Broussais of gastro-enterite; but the symptoms of the affection are the same, according to both authors; and its various sympathetic effects are equally insisted on by both. Indeed, if we thought it worth while, we could lay claim to all that

is valuable in M. Broussais' theory, in favour of our great English surgeon, who certainly published his observations on the constitutional origin and treatment of local diseases long before his French imitator was ever heard of in this country. Their doctrines being so similar, there is no great difference in their practice. They both recommend the antiphlogistic regimen as far as relates to aliments; and if Mr Abernethy does not employ leeches to the abdomen, he supplies their place by small doses of blue pill, which unload the bowels without producing the purgative effect so much dreaded by M. Broussais. This remarkable coincidence in the views of two practitioners, labouring at a distance from each other, and without any communication, in different portions of medical science, should be a sort of corroborative proof that these views are correct. Our conviction of the truth of Mr Abernethy's should dispose us to receive with favour M. Broussais' opinions; and the latter, again, should serve to confirm us in our just partiality to those of Mr Abernethy.

Dr Cullen has not treated of inflammation of the peritonæum in his System, but he has given it a place in the Nosology, and laid down its distinctive character. His reasons for this omission are, that the disease is hardly to be recognised when alone, and does not require any special treatment. No better proof could be adduced of the inherent defects of symptomatic nosology, than that one of the diseases of the body, the best defined by its seat, and the most easily discovered by its symptoms, should have been omitted in a System of Practice founded on that basis. Dr Cullen, judging from symptoms alone, and not comparing these with the appearances presented by the dead body, could not distinguish an inflammation of the peritonaum from that of the stomach,-just as he was unable, and for the same reasons, to form a diagnosis between pleurisy and pneumonia. Hence his symptoms of gastritis and enteritis are more applicable to inflammation of the peritonæum than to those diseases; and upon reading the histories of them, we shall be convinced, that Dr Cullen, in practice, confounded them together. Dr Wilson Philip, with better opportunities of information, has been guilty of the same mistakes. He has mentioned, that in gastritis and enteritis the pain is increased on pressure. Now this is a symptom peculiar to peritonitis, and is never observed in them but when the peritonæum is affected at the same time.

Peritonitis occurs either as a primary disease, from the application of the common causes of inflammation, or secondary, in consequence of a strangulation of some part of the intestines, or of rupture of some portion, or from ulcerations. It may be acute or chronic. But in all these cases its symptoms are specifically the same, and vary only in degree. The most prominent symptom is pain of the abdomen, increased on This is the diagnostic sign of peritonæal inflammation. When the alimentary canal alone is affected, the pain is not increased on pressure, except in some severe forms of acute gastritis. In colic, the pain is relieved by pressure. Peritonæal pain is most severe about the umbilicus: it commonly begins there, but rapidly extends over the whole abdominal region, shooting into the back, and downwards to the thighs. It is most acute, and gives a peculiar expression of suffering to the countenance of the patient, and is so easily increased by motion or by pressure, that the slightest touch, and even the weight of the bed-clothes, are complained of as intolerable. The abdomen swells gradually, partly from a tympanitic state of the intestines, partly from liquid effusion into the cavity of the peritonæum, and the pain commonly increases along with the swelling, and in proportion to it. General fever is always present. It is seldom purely inflammatory; it has most commonly a typhoid type, characterised by great prostration of strength, anxiety,-frequently delirium, and most commonly a small contracted wiry pulse.

The symptoms of prostration depend on the extent and severity of the inflammation, and most commonly are easily removed by the timely use of depletory measures. They are not peculiar to peritonitis, but are common to all inflammatory affections of the alimentary canal. The bowels are costive, unless when the mucous membrane of the colon is affected, when there is diarrhœa. Respiration is generally short and hurried, performed by the ribs, with little or no assistance from the diaphragm and abdominal muscles. The general expression and physiognomy of the patient are peculiar. The countenance is often pale, indicates severe irremediable suffering; the eye-brows and features are drawn upwards, and over the whole person there is an expression of despair. These symptoms cannot be described; they must be seen; but they are very characteristic of peritonæal inflammation, particularly of that form of it which occurs to puerperal women, and has been called Puerperal Fever. Vomiting is usually present; it is one of the earliest symptoms of the disease, and is readily excited by any ingesta, even the mildest fluids. These different symptoms continue a longer or shorter time in different cases. Shortly before death, when the case is to terminate fatally, all the symptoms seem to be suddenly relieved: the pain entirely ceases; the patient says he feels quite well. But the appearance of improvement is deceitful; gangrene has supervened, and is indicated by coldness of the general surface, clammy sweats, intermitting pulse.

Such is the history of the more prominent symptoms of peritonæal inflammation: they will of course be modified in a variety of forms in different cases; but these, the limits of a note like this prevent me from describing.

The disease consists in an inflamed state of the serous membrane of the abdomen. The inflammation sometimes proceeds no further than increased vascularity. This takes place where it is suddenly arrested by copious bleeding, or

where it is very rapidly fatal, as after rupture of the intestines, or perforation of them from the progress of an ulcer. The vascularity affects the membrane itself, and the subserous cellular tissue, both of which become friable, and the former opaque. Generally there is effusion; partly solid, consisting of albuminous matter, coagulable lymph as it is called; partly liquid, composed of serum, or of a mixture of serum and pus. In some cases there is effused a pure purulent fluid. By means of the solid adhesive matter the omentum is matted together, and adheres to the intestines, and these latter to each other, and to the parietes of the abdomen, so that the proper sac of the peritonæum becomes completely obliterated. If the disease pass into the chronic form, the serous membrane becomes permanently thickened at different parts, from the inflammation of the subserous cellular tissue: the effused albuminous matter, which at first is simply effused on the surface of the peritonæum, becomes vascular, vital, and gradually passes into the membranous state, forming long, but often very firm adhesions between neighbouring parts. When a cure takes place after effusion, such adhesions are always formed. In chronic peritonitis the solid part of the effusion is inconsiderable; the quantity of the liquid portion is always very great: the latter is sometimes purely serous, and puts on the appearance of dropsy; at other times it seems composed of pure pus, and has a tendency to burst, after the manner of true abscesses, sometimes through the parietes of the abdomen, sometimes into some portion of the alimentary canal.

The fever of women in childbed, so often fatal, has been proved, on the very best authority, to be nothing but an inflammation of the peritonæum, sometimes manifestly contagious. Whether arising from contagion, exposure to cold, or from a too heating and stimulating plan of treatment,

puerperal fever begins with the same general symptoms that characterise peritonitis under common circumstances:—shivering, followed by heat; swelling and tension of the abdomen, with horrible pain on pressure; great constitutional disturbance, and tendency to deliquium in the erect posture. The disease spreads very rapidly; the pulse is small, feeble and fluttering, and there is apparently great prostration of strength, and an expression of countenance peculiarly oppressed and anxious. Very often there is delirium from the commencement of the attack. These typhoid symptoms are, however, only apparent: there is no real debility at first; the powers of the system are only oppressed, and may be made to rally by proper treatment.

On dissection we find the peritonæum universally inflamed, as has been described above, and, moreover, the uterine system is sometimes affected. The uterus has often abscesses in its parietes, and the ovaries too are occasionally broken down, and filled with pus. From the uterus and ovaries purulent matter is frequently absorbed by the veins, a fact which will account for many of the fatal cases of the disease. The uterine veins and the spermatic are often found filled with it. In other respects the morbid appearances are exactly similar to those found in common cases

The treatment of puerperal fever has been the subject of much controversy among medical men; the antiphlogistic regimen, and the stimulating plan, having each their favourers and supporters. Much contradictory evidence has been brought forward on the subject, but, on the whole, the stronger testimony is in favour of treating the disease exactly as a common inflammation. The period, however, during which depleting measures may be pursued, is often exceedingly short: the true inflammatory stage soon passes away, and, probably on account of the previous exhaustion of the patient, is soon succeeded by typhoid symptoms. The

most careful attention, therefore, ought to be paid to the patient: the belly must be frequently examined and pressed, to ascertain whether or not it is tender to the touch. If the belly be tender, if the pulse be small and rapid, with vomiting, we can have no doubt of the existence of puerperal fever, that is, of peritonæal inflammation. The patient must be immediately and copiously bled; as much blood should be taken away as the strength of the patient will permit; hot fomentations must be applied to the whole abdomen, and, even though a diarrhœa be present, a draught of castor oil ought to be given. The effect of this treatment, in alleviating the symptoms, will perhaps only be temporary: we must be on the watch, and repeat the bleeding at the end of three or four hours, if the tenderness of the abdomen should return, and the state of the pulse seem to require it. As it is only during the first twenty-four hours of the disease that any treatment can be successful, the practitioner ought hardly to quit his patient, or at least to see her every two hours; and he must, without fear or hesitation, repeat the bleeding, either generally, or topically, as often as the symptoms may seem to demand it. Blisters are, on the whole, of very little use: the common blister does not act sufficiently rapidly: one of mustard adds greatly to the general irritation of the patient; and, besides, bleeding, generally and topically, is the energetic means to be employed during the short period in which any treatment can be successful. If that period have passed before the true nature of the disease has been discovered, as very frequently happens, or if the disease have been too active to be subdued by all the evacuations we can venture to practise, then the true typhoid stage supervenes, and we must have recourse to remedies suited to the state of the patient, wine, opium, and a stimulating plan. Their most favourable effect is to cause such a state of the pulse and the general powers, that we may perhaps venture on a small

bleeding; or we are encouraged to persist by a cessation of the delirium. But, indeed, when the disease has fairly advanced to the typhoid state, very little is to be expected from any kind of treatment: we must prognosticate, and be prepared for the worst; and we shall commonly have to witness the rather sudden death of our patient, thirty-six or forty-eight hours from the commencement of the attack.

Such is the general course and treatment of this most horrible disease, which often prevails epidemically in hospitals, and spreads terror and dismay through all ranks of society. The earlier writers on the subject seem to have been most unfortunate in their cases. Deceived by the apparent typhoid symptoms, they resorted, even at the first, to cordials, &c., and lost nearly all their patients. But many have been saved by the knowledge of the real inflammatory nature of the complaint in its first stage, and of the possibility of preventing the second by the timely use of the lancet. One of the chief points to be attended to is the extreme rapidity of the disease; the necessity of acting with vigour during the first twenty-four hours, after which it but too commonly happens that no means can save the patient.

It is worth while to mention, that it is in cases of puerperal fever that we most frequently meet with those solutions of the stomach, ascribed by Mr Hunter to the action of the gastric juice. The solution generally takes place at the great extremity of the organ, and on that portion of the posterior surface which lies against the vertebral column. Sometimes the mucous membrane only is affected, and is abraded to a considerable extent. Generally the whole coats of the viscus are attacked and perforated by a hole, sometimes small, sometimes extending to the whole splenic portion. The edges of the opening are always irregularly fringed, the serous coat being less affected than the mucous and muscular: there are no traces of vascular action to be perceived, and no adhesions exist between the stomach

and the neighbouring viscera. These latter, as the liver, spleen, and pancreas, sometimes are affected, and have their tissue softened or abraded to a considerable extent: of course the contents of the stomach are effused into the back cavity of the peritonæum. This pathological state of the stomach does not always begin in the mucous membrane. In a case which I examined in March last, in the Royal Infirmary here, the serous and muscular coats were confounded together, pulpy, gelatinous, but the mucous coat was very little affected; the submucous was quite sound.

See Dr Mackintosh's Treatise on Puerperal Fever; Dr Armstrong and Dr Gordon of Aberdeen on do., and the various writers on Midwifery.

Definition of Hepatitis .- The symptoms enumerated, as distinctive of the acute inflammation of the liver, are hardly to be trusted to: they belong rather to the peritonæal covering than to the substance of the organ, and are to be found in the inflammation of both the serous coverings of the diaphragm as well as in that of the liver. In the notes on Pleurisy, I took notice of that circumscribed inflammation which is confined to the pleura, at the base of the right lung, and the neighbouring portion of the diaphragm; and mentioned that its symptoms are those of acute hepatitis, and that I had seen it considered and treated as such in practice. In a practical point of view, any error of diagnostic in this matter is not of great importance, as such an assemblage of symptoms will always justify, and even require, the adoption of very active antiphlogistic measures. I must confess I have seen very few cases of acute inflammation of the substance of the liver. I have, however, met with a few occurring after injuries of the head, and in the course of other diseases. Some of these were not announced during life by any particular symptoms, and were only accidentally discovered by dissection. Others were suspected by an assemblage of symptoms similar to those of chronic hepatitis. I do not recollect that in any of them the patients complained of pain at the top of the right shoulder. I am inclined, therefore, to believe that the inflammation of the parenchyma of the liver is not necessarily attended with pain even on pressure, though this be pretty generally observed in the affection of its serous membrane.

The symptoms of the chronic species are very nearly the same as those set down by the writers who have seen the disease in tropical climates. There being no precise pathognomonic signs, the disease is in general suspected, rather than proved to exist; and in this country there is but too much reason to believe, that chronic affections of the mucous membrane of the stomach and duodenum are often mistaken for diseases of the liver.

416. Surgical writers have frequently mentioned the occurrence of Abscesses of the liver after injuries of the head. Several cases of this kind I have seen, which all proved fatal. Several abscesses were found in the liver, containing well-formed pus, and in some places the tissue of the organ was highly injected and soft, as if in progress to suppuration. I am induced to believe that the affection is the best example we can shew in this country of the inflammation of the liver, and that it runs through the successive stages of injection, softening, and suppuration. The symptoms were exceedingly obscure,—feeling of fulness and weight in the right hypochondrium, disorder of digestion, with irregular febrile paroxysms. In several of the cases, the affection of the liver was not suspected previous to death.

Intermittent and remittent fevers have been, from the earliest times, set down among the causes of hepatitis; but the accounts we have of the dissection in fatal cases are extremely few and unsatisfactory. My own experience, which I avow is not very extensive, is not such as to confirm this

opinion. I have not seen any case of true inflammation of the liver, attended with softening and suppuration, which I could ascribe to the above cause. I have, however, often seen the organ greatly enlarged, and as often diminished in size; sometimes hard, swelled and enlarged; sometimes pale, shrunk in volume, and soft in its whole structure. These latter states are alterations in the nutrition of the organ, but cannot be considered as genuine inflammations. They are often denominated Congestions of the liver, -a term which, as expressing merely the presence of a larger quantity of blood than usual, without tendency to disorganization, may be admitted into use as sufficiently distinctive. M. Boulland in the Mémoires de la Société Médicale d'Emulation, and M. Andral in the 4th vol. of his Clinique Médicale, have published some excellent remarks on the different kinds of congestion, and shewn that it may be seated in different parts of the peculiar component textures of the liver. The ultimate secreting part of the liver, it is well known, consists of the minute ramifications of the vessels and ducts of the liver, blended together into small, round, highly red granules, denominated Acini. Each of these gives origin to a radicle of an excretory duct. The Acini are all united to each other by cellular tissue, in which the vessels are subdivided ad infinitum, before attaining the degree of minuteness, after which they enter into the composition of the secreting granules. This cellular tissue, known to anatomists under the name of Capsule of Glisson, is most abundant and loose around the branches of the vena portarum, but it undoubtedly exists around the other vessels also, and probably serves the same purposes in the nutrition of the liver, as the pia mater does in that of the brain. These two substances may be distinguished from each other by an experienced eye in the natural state of the adult liver. In some varieties of the morbid, they are easily seen, separate from each other. The acini are seen round, small as pin

heads, red, highly vascular, separated from each other by the cellular portion, white or yellow according to circumstances. An enlargement or a diminution of the size of the liver may have its proper seat in either of these parts. In enlargement, depending on hypertrophy of the acini, these latter acquire most commonly a larger size, become more red, are more easily distinguished from each other, or several of them thus enlarged run together and form the cirrhosis, or the irregularly lobulated liver, so commonly seen in drunkards. The colour of the granules or the lobules is various, according to the quantity of blood in the organ, and according as it has or has not received a tinge from the bile. The cellular portion also is frequently in a state of hypertrophy, whence may arise an enlargement of the whole organ. It varies in degree, being sometimes so slight as merely to cause the granules to be distinguished more readily on account of their more vivid colour, sometimes to such a degree as to present the appearance of distinct white bands running through its substance, and not unfrequently the whole organ seems hard, condensed, and fibrous. last state is commonly called scirrhus of the liver, but is merely hypertrophy of the cellular portion of the organ, and has nothing in common with the true scirrhous degene-It sometimes happens that the increase of the cellular structure coincides with a shrinking of the acini; and if the former be tinged more or less with bile, the liver will appear on the whole diminished in size, hard, friable, and yellow. Again, it is worthy of notice, that different portions of the liver may be differently affected at one and the same time. The left lobe may be larger than natural, the right considerably smaller; in the one the acini may be affected, in the other the cellular texture, and in most cases of chronic alterations of the liver we find this to have taken place. Indeed, the diseases of this organ are exceedingly complicated with each other, very few simple cases being

met with in dissections. Besides these alterations of the proper texture of the liver, the organ is often the seat of various morbid depositions: it may be enlarged from tubercular matter, from the true cerebriform structure, or from fat. The tubercles of the liver run through the general course of these bodies in other parts: they are the cause of the greater number of suppurations and abscesses we meet with: they are commonly fatal, from the hectic fever and diarrhœa in which they end. I have seen a good many such instances where the abscesses burst, or were opened through the parietes of the abdomen, and they were all fatal. The cerebriform degeneration often exists along with cancer of the stomach, sometimes with and sometimes without general enlargement of the organ: it is here, as elsewhere, necessarily and inevitably fatal. The fatty degeneration of the liver seems to be very common in the hospitals of Paris: it is comparatively rare in this country. It seldom occurs as a primary and isolated disease, but is generally met with in the train of chronic distempers, especially phthisis. In the fatty state the size of the liver is generally, but not always, increased. It is yellow in colour, softer than natural, and greases the scalpel drawn through it. The disease seems to consist of a deposition of fat in the cellular texture, and to be analogous to the fatty degeneration of the muscles. But we must not forget that the liver may be very much diminished in size in some of its affections, and that either generally and partially; and many cases of this kind are attended with many of the symptoms present in enlargements of the organ.

It is much to be regretted, that the symptoms of these different changes in the liver are all of them exceedingly obscure and doubtful. The writers on hepatitis of warm climates have been hardly sufficiently attentive to the varieties of morbid structure—have been too apt to consider all enlargements of the organ as genuine inflammations, while

our own home practitioners have taken their ideas on the subject from their brethren of the East and West Indies. Of genuine inflammation in this country, the symptoms are so uncertain, that we can hardly ever depend on our diagnosis; and we possess few, if any, signs by which we can distinguish the different kinds of enlargement from each other. In fact, the whole subject of hepatitis requires to be re-examined, particularly in what refers to the symptoms and treatment. In the present state of our knowledge, the former are not to be depended on, and the latter is purely empirical.

- 418. Acute hepatitis is not always seated in the peritonwal covering: the texture of the liver may be acutely inflamed like that of the lungs, and it is attended, in the comparatively few cases in which it has been observed in this country, with softening and suppuration. The symptoms of it are sometimes very violent,—sometimes so obscure, that the disease is not suspected before death.
 - 419. The termination of hepatitis in suppuration is exceedingly rare. Matter in the liver is commonly owing to tubercles proceeding to suppuration. Gangrene I have never seen.
 - 421. Instances of all those terminations of the suppuration of the liver are occasionally met with. The most speedily fatal is where the matter bursts into the cavity of the abdomen; the usual consequence of which is an inflammation of the peritonæum, of great intensity, and death at the end of a very few hours. Where the matter bursts into the intestines, or is discharged by incision of the parietes of the abdomen, recovery sometimes takes place. The great majority of the patients, however, die with the usual symptoms of long-continued and profuse suppuration.

The termination of hepatitis in abscess, although not so frequent as in the East and West Indies, where it may be said to be endemic, is yet by no means so rare, as some authors have supposed, in more temperate climates. M. Portal, in his elaborate work on the diseases of the liver, has collected together numerous cases of this nature, both from his own experience, and from the writings of older authors *. The researches of M. Louis and M. Andral tend to throw considerable light upon the causes, symptoms, and various terminations of hepatitis; - a subject previously involved in so much uncertainty, that it still remained a matter of doubt, with some medical writers, whether abscess ever took place in the parenchymatous substance of the liver. In four, out of five cases, of which the history is given by M. Louis, with his usual minuteness and accuracy, the tissue of the liver surrounding the abscesses exhibited a deeper red colour, and was softer and more friable than in the healthy state, or had undergone that alteration of structure called by the French Pathologists ramollissement rouge. In the fifth case, where the consistence of the tissue was greater than natural, the progress of the disease had been slower +.

M. Andral has published very full details of twelve cases, which with those related by M. Louis afford a very comprehensive history of abscess in the liver after hepatitis. The parenchymatous substance in eight of these cases, in which the progress of the disease had been most rapid, exhibited the ramollissement rouge in a very marked degree, ei-

[·] Portal, Observations sur la Nature et le Traitement des Maladies du Foie.

⁺ Louis, Mémoires, ou Recherches Anatomico-Pathologiques, Mémoire sur les Abcès du Foie, p. 351.

ther over the whole organ, or in the immediate vicinity of the abscesses, with the exception of one complicated and chronic case, in which increased redness was combined with increased consistence of the tissue. In one case, there was very extensive softening, with a paler colour than natural; and in three, in which the disease had been of long standing, and the abscess of large size, the texture of the organ seemed to have retained its natural appearance *.

This alteration in the natural colour and consistence of the parenchyma, especially in those parts immediately surrounding the seat of the abscesses, combined, as in these cases, with some of the more prominent symptoms of hepatitis, may be considered as decisive evidence that such collections of purulent matter are the immediate result of previous inflammation +.

The singular coincidence, and apparent connexion, between injuries of the head and abscess of the liver, early attracted the attention of medical observers; and the frequent occurrence of inflammation of the liver after injuries of the head induced Dr Cullen to place " external violence from contusions or falls, especially those which have occasioned a fracture of the cranium," among the remote causes of hepatitis. Various hypotheses have at different times been advanced in explanation of their remarkable coincidence; but hitherto without success. More lately it was supposed by M. Portal, that where abscess in the liver occurred after wounds of the head, or fracture of the cranium, there had been concomitant injury or concussion of the liver itself. This hypothesis has been adopted by M. Richerand, who adduces in its support a number of experiments upon dead bodies allow-

[·] Andral, Clinique Médicale, tome iv. p. 213.

[†] The same appearances are found in abscess succeeding the acute hepatitis of warm climates .- See Annesley's Researches on the more prevalent Diseases of India, vol. i. p. 534.

ed to fall from a certain height, which go to prove that, next to the brain, the liver is the organ most injured by the external violence and concussion *.

This explanation, however ingenious, has been sufficiently refuted by M. Larrey, who, in an article written expressly on this subject, has clearly shown, that abscesses in the liver frequently occur, and prove fatal to individuals previously well, who have not even fallen to the ground, on receiving sabre wounds of the head, which, although sometimes very slight, have been the only external injury received +. It may be stated, that suppuration of the liver has been observed to take place in the course of certain diseases of the encephalon, unconnected with external injury of any kind, more especially in inflammation of the membranes; and besides, although occurring most frequently in the liver, these abscesses succeeding blows on the head are by no means confined to that organ, but have also been found in the lungs, the heart, the cavity of the pleura, the spleen, the cellular tissue, and the joints ‡.

The nature and causes of this singular connexion are still perhaps involved in obscurity; but the fact, which is perhaps the only point of practical importance, that such a connexion is frequently observed to exist, appears to be established on very sufficient evidence ||.

^{*} Richerand, Nosographie Chirurgicale, 4me edition, tome ii. p. 220.

[†] Larrey, Dictionnaire des Sciences Médicales, tome xvi. Article Foie; abcès de ce viscère, qui accompagnent ou suivent les plaies de la tête.

[†] Morgagni, De Sed. et Caus. Morb. Epist. 51. Art. 17, 18, 19, 20. et seq.—Portal, Sur les Maladies du Foie, p. 607.

[|] Morgagni, De Sed. et Caus. Morb. Epist. li. Art. 20, 21, 22.—Bertrandi, Mémoires de l'Academie de Chirurgie, De abscessibus qui vulneribus capitis superveniunt, vol. iii. p. 485, et seq.—Lieutaud, Historia Anatomico-Medica.—Desault, (Euvres Chirurgicales, par Bichat, tome ii. p. 62.—Portal, Sur les Maladies du Foie, p. 592.—Richerand, Nosographie Chirurgicale, tome i. p. 456; et Elemens de Physiologie.—Andral, Clinique Médicale, tome iv. p. 261.—Larrey, Mémoires de Chirurgie Militaire, tome i. p. 306; tome iv. p. 229.—Hennen, Principles of Military Surgery, 2d edit. p. 309.

There still remains to be mentioned another form in which abscesses, under peculiar circumstances, are found in the substance of the liver. Upon examination of the bodies of those who have died after surgical operations, fractures, injuries, or suppuration in some part of the body, it not unfrequently happens, that numerous abscesses, or collections of pus, generally of small size, and often approaching to tubercles, are found in various internal organs, as the brain, the lungs, the heart, the spleen, the kidneys, and more particularly the liver. This is a subject which, perhaps, has not hitherto been sufficiently attended to in this country; and it is one of peculiar interest and importance in a surgical view, because these depositions of purulent matter are found to take place in persons who, previous to the operation, or injury, or suppuration, which terminated fatally, were healthy,-to be accompanied by no well-marked symptoms of inflammation during life, -to prove almost invariably fatal,—and to exhibit, on dissection, in the great majority of cases, no traces of inflammatory action.

We are indebted to M. Velpeau for several valuable memoirs on this subject, upon which Mr Rose has also lately published a paper *. Mr Rose's attention was first called to this circumstance, by its occurrence after amputation, during the Peninsular war; and he has since met with it repeatedly in the lungs, the liver, and the spleen, after various accidents. He has not been able to discover any peculiarity of constitution which could be regarded as predisposing to these purulent depositions. Their existence was often not suspected by the nature of the symptoms during life; and many of those who fell victims to them were young, and, until they met with the injuries, had always been healthy.

^{*} On Depositions of Pus and Lymph, occurring in the Lungs and other Viscera, after injuries of different parts of the body; with additional Cases, communicated by Mr Lawrence, Med. Chir. Trans. of London, vol. xiv. part 1.

On this point, M. Velpeau, whose attention has been specially directed to the subject, makes the following observations: "Unless these purulent collections have attracted the attention of the practitioner, it is rare that their existence can be ascertained during life. It may, however, be suspected, that the deposition is taking place, when, in a person affected with wounds, ulcers, or suppuration after amputation, or any other severe operation, there occurs a general re-action, unexpected, and without any apparent cause." Along with the usual febrile symptoms, there takes place a marked alteration for the worse in the character of the suppuration, the quantity of which is often evidently and suddenly diminished. M. Velpeau is of opinion, that the numerous collections of purulent matter found in the tissue of so many organs under these circumstances, have been simply deposited there, after having been absorbed from the points where suppuration primarily existed; and that inflammation, where it occurs, is only secondary, and the consequence of the irritation caused by the presence of the pus already effused. Upon this principle, as it has been ascertained that absorption, whether venous or lymphatic, is facilitated by the abstraction of blood, he conceives that bleeding is not advisable; and he thinks that it was actually hurtful in the majority of cases which came under his observation. All of these, where the symptoms decidedly indicated absorption, terminated fatally *. On this point, the result of his experience accords with that of Mr Rose, as well as of other authors who have met with the affection. It may be stated, that several cases terminating fatally, after opera-

Revue Médicale, tome ii. p. 440; tome iii. p. 68; tome iv. p. 212. Sur la Pleurésie à la suite des grandes opérations chirurgicales, ou d'une suppuration plus ou moins abondante. Id. tome iv. p. 380. Sur les Abcès tuberculeux, chez les sujets qui succombent aux grandes opérations chirurgicales, ou bien à la suite d'une suppuration plus ou moins abondante. Id. tome iv. p. 392.

tions performed under favourable circumstances, have lately occurred in the Royal Infirmary, where, on examination, tubercular abscesses, similar to those described above, were found in the lungs and the liver, although no symptoms existed before operation which could lead to a suspicion that these organs were the seat of disease.

There appears to exist some analogy between the symptoms and progress of this affection, and those of inflammation of the veins; and three of the cases subjoined by Mr Lawrence to Mr Rose's paper might, perhaps, with more propriety, be referred to this last affection, which is admitted by M. Velpeau as frequently coinciding with the deposition of purulent matter. The following statement by M. Andral, as to principal circumstances in which the liver becomes the seat of abscesses, may be quoted in corroboration of the opinion of M. Velpeau: "They are met with in this organ; 1st, After external violence applied directly to the liver; 2dly, After injuries of the head; 3dly, Spontaneously, as the termination of acute or chronic hepatitis; this is a more rare occurrence than the two first mentioned; 4thly, Lastly, there are cases in which the purulent collections found in the liver do not appear to be deposited in consequence of hepatitis; but formed elsewhere, and carried into the current of the circulation, it would appear that the pus is only separated from the blood in the liver. It is at least certain, that in such cases no symptom of hepatitis has existed during life; that after death, no traces of inflammation, or of diseased action, can be observed around the purulent collections; that most commonly similar abscesses are at the same time found in other parts, in the lungs, the spleen, the brain, the subcutaneous and intermuscular tissue; that the formation of pus has not been preceded by the symptoms of inflammation in any of these parts; and, lastly, That this kind of abscess occurs more particularly in certain conditions of the economy, namely, after great surgical operations, after laborious parturition, or when abundant suppuration, long kept up, has been suddenly stopped *.

An opinion has prevailed, that hepatitis, especially in warm climates, is very generally connected with dysentery; but more recent investigations on this subject have shewn, that this connexion is, at least in acute cases, much less frequent than has been supposed †. Tenesmus and other dysenteric symptoms frequently occur in the course of hepatitis, especially when the function of the intestines has been disordered from the commencement; but the affection of the mucous membrane of the large intestines, characteristic of dysentery, is by no means a necessary concomitant of inflammation of the liver, as the costive state of the bowels in this disease often requires the use of purgatives; and the examination of fatal cases frequently exhibits no alteration in the mucous membrane; while, on the other hand, many fatal cases of dysentery occur in this country, as well as in warm climates, in which no traces of diseased action in the liver can be detected t.

The opinions and experience of Dr Robertson on this subject appear to be at variance with those of most recent authors. The dysentery which prevailed among the troops during the expedition to New Orleans in 1814, came under Dr Robertson's observation. The disease assumed the usual type, and no symptoms indicating inflammation of the liver were observed; but examination of fatal cases exhibited "a soft friable condition, and generally suppuration

[•] Andral, Clinique Médicale, tome iv. p. 18.

[†] Ballingall, Practical Observations on Fever, Dysentery, and Liver Complaints, as they occur amongst the European Troops in India, p. 56-7, and Tables of Dissections.—Bampfield, A Practical Treatise on Tropical Dysentery, especially in the East Indies, illustrated by Cases and Appearances on Dissections, Preface, and p. 26.—Annesley, Researches on the more prevalent Discases of India, vol. i. p. 404. et seq.; vol. ii. pp. 151. et seq. 202.

[‡] See Appendix on Dysentery.

of that gland," along with numerous excoriated points, and small superficial ulcers in the villous coat of the colon and rectum; from which he concludes that the co-existence is very frequent, if not uniform. According to Dr James Johnson, the same connexion exists in the hepatitis of India, of which he considers the flux a pathognomonic symptom, while it is almost always wanting in that of Europe *. It would, perhaps, be impossible to reconcile these various discordant statements; but it may be stated with respect to the dysentery of New Orleans, that it appears from Dr Robertson's paper, that the weather was extremely cold, the thermometer being often as low as 25° and 26°, and seldom above 50° of Fahrenheit; so that the disease of New Orleans can scarcely be compared with the dysentery of tropical climates.

The gall bladder and the excretory ducts of the bile sometimes become the seat of acute or chronic inflammation, with its various terminations and consequences; particularly thickening of their coats, with diminution, or obliteration of their cavities, softening, ulceration and rupture of their membranes, and deposition of purulent matter. In 17 out of 426 subjects examined by M. Louis, the gall bladder was found more or less diseased; and it is worthy of remark, that these morbid alterations were not uniformly, though frequently connected with biliary concretions †. The symptoms of inflammation of these organs are, like those of hepatitis, obscure, and cannot probably be distinguished from those of inflammation of the concave surface of the liver.

^{*} James Johnson, On the Influence of Tropical Climates, 2d edit. p. 174, with an Appendix on the principal Diseases of the Fleet and Army in the Expedition to New Orleans, by Archibald Robertson, M. D. p. 438.

[†] Louis, Recherches Anatomico-Pathologiques, p. 393.—Andral, Clinique Médicale, tome iv. p. 323.—Annesley, Researches on the Diseases of India, vol. i. p. 435.—Baillie's Morbid Anatomy, p. 156.

It has been supposed, particularly by M. Broussais, that inflammation is often propagated from the duodenum, by means of the ducts, to the liver; but there are few cases of hepatitis on record, in which any marks of inflammation of the duodenum were found; and the appearances which have been thought to indicate gastro-entérite, in cases of chronic liver diseases, are by no means unequivocal.

As the circumstance has not been mentioned by Dr Cullen, it may be proper here to state, that hæmatemesis, or melæna, or both, often occur in the course of chronic affections of the liver, with alteration of its structure, and are frequently the precursors of the fatal termination *. Dropsy, in its various forms, as will be stated under that head, is also a frequent consequence of liver disease.

422. With regard to the treatment of the acute form of hepatitis, it may be observed, that many practitioners in warm climates are now no longer deterred by the minor danger of debilitated, or, as they are called, Indian constitutions, but generally have immediate recourse to the same active measures of depletion so successfully employed in Europe †. Full blood-letting, according to circumstances, commonly followed by leeches, and always by purgatives, with occasional blisters, is the method of cure most generally adopted and recommended by recent authors upon this subject. Calomel, in doses of from ten grains to a scruple, sometimes combined with a grain or two of opium, and often repeated after some hours, is the purgative in highest estimation: its operation is generally followed by castor oil or

^{*} Heberden, Medical Transactions, vol. ii. p. 170.—Portal, Mémoires sur plusieurs Maladies, vol. ii. p. 129; et sur les Maladies du Foie, article xv. p. 551. et xvi. p. 556.

[†] See the Works of Dr James Johnson, Dr Ballingall, and Mr Annesley, already referred to.

neutral salts alone, or combined with senna. Mr Annesley, in his last work, recommends the use of calomel to be carried so far as to induce ptyalism, if the mouth has become affected: this is not, however, the uniform practice of recent authors in the acute form of the disease.

423. In the chronic form of hepatitis, the remedies principally employed in India are, local depletion by leeches, blisters, and sometimes setons or issues, purgatives, especially calomel, and some of the milder saline aperients, with antimonials frequently repeated. The nitro-muriatic solution, in the form of lotion or bath, is frequently employed as a substitute for mercury; and the nitrous acid, when greatly diluted, is often used as common drink. In this country, where chronic inflammation of the liver is a very obscure affection, and its symptoms chiefly those of dyspepsia, mercury was long considered the principal or only remedy, and it is still much employed; but many practitioners now prefer the use of cooling saline purgatives frequently repeated, and continued for some time; as the sulphates of soda and magnesia, the supertartrate of potash, &c. or the natural aperient springs. Whether mercury or purgatives be employed, a cool spare diet may be considered an essential part of the treatment.

424. Out of thirteen cases in which the abscess pointed externally, and in which the operation was performed by Dr James Clark of Dominica, eight were permanently cured: in two, the operation was successful, but the patients died afterwards, the one from dysentery, and the other from fever; and in three cases the operation had either been too long delayed, or the whole substance of the right lobe was found destroyed by the extent of the abscess. In five cases given by Mr Annesley, the operation was permanently successful in two, temporarily so in one; and in two, where the ab-

scesses were very extensive, it was unsuccessful *. Cicatrices appear to be very rarely met with in the liver; they are, however, mentioned by M. Mérat, as occurring of a fibrous and stellated appearance in the parenchymatous tissue of the organ †; a fact which seems to be fully confirmed by two cases given by Mr Annesley, with plates, representing cicatrices of the same character found in the substance of the liver.

As from the obscurity and uncertainty which so commonly attends hepatitis, even minute symptoms become important, it may be proper here to mention one which Dr Clark, who had ample experience in this disease, considered as the most general diagnostic mark to be found, and which is also adverted to by M. Jourdan ‡; namely, that powerful sternutatories, employed for the purpose, are insufficient to induce the act of sneezing. This, however, may depend merely on the pain caused by the effort made, and will not consequently be confined to this affection. With reference to the diagnosis, it may also be proper here to allude to percussion. which, as recently improved and extended in its application by M. Piorry, may be employed with advantage to detect those morbid alterations of the liver, especially as to volume and situation, which cannot be determined by mere manual examination ||.

425. Splenitis.—As the functions of the spleen are in a great measure unknown, so the nature and symptoms of the

[•] Histories of Cases of Abscesses in the Liver, with Observations on the Effects of opening them, by Dr James Clark of Dominica, Medical Commentaries, vol. xiv. p. 317.—Annesley, Researches on the Diseases of India, vol. i. p. 656.

[†] Dictionnaire des Sciences Médicales, tome xvi. article Foie.

[‡] Ibid. tome xxi. article Hepatite.

Piorry, Sur la Percussion Medicale, &c. Paris, 1828.

various morbid alterations to which it is liable, are still involved in much obscurity; and from the peculiar structure of this organ, Pathologists are not only at variance as to the anatomical character of splenitis, but some authors have doubted whether it has ever been actually observed. Although certain alterations, which are considered as unequivocal indications of previous inflammation in other organs, cannot be so implicitly relied upon when occurring in the spleen, yet from the nature of some of the symptoms which accompany affections of this organ, and from the kind of treatment found most successful, it is probable that a vascular congestion, partaking more or less of the characters of inflammation, is connected with most of the morbid alterations observed after death. Of these, the most remarkable, perhaps, as well as the most frequent, is that extreme softening, with very dark colour, of its substance, in consequence of which it often resembles coagulated venous blood, and breaks down, upon the slightest pressure, into a friable and pultaceous mass, sometimes of nearly fluid consistence. This change of consistence is commonly accompanied by an increase in the volume of the organ, especially in India, where it is endemic; and the spleen is often so much enlarged, as to give rise to a tumour, felt distinctly below the left false ribs, generally well defined, and variable as to form, size, and situation. In some cases of enlargement, there is no evident tumour below the margin of the ribs; but its existence can be ascertained by the dull sound returned on percussion by the lateral and inferior part of the left side of the thorax, which is generally occupied by the great cul de sac of the stomach. The causes of this affection are various and obscure. It frequently occurs in the course of protracted intermittent and remittent fevers, and in children of weak constitution after acute diseases; and it is sometimes connected with amenorrhoea in females, and seems to give rise to that pallid or cadaverous colour of the counte-

nance, and that peculiar pearly lustre of the eyes, sometimes observed in obscure organic disease of the abdomen. According to Mr Twining, who has had frequent opportunities of meeting with affections of the spleen in India, the plan of treatment found most useful there is a steady perseverance in a course of purgatives, combined with bitters and some preparation of iron; which, with a mild and rather abstemious diet, generally proves successful in removing enlargements when of recent origin. In the earlier and more febrile stage, leeches near the spleen, and sometimes blood-letting, are employed with advantage *. It has been observed, both in India and in this country, that in cases of enlargement of the spleen, very slight local injuries, such as leech-bites and blisters, show a tendency to degenerate into foul sloughing ulcers. This has been more particularly observed in cases where mercury has been employed. According to Mr Twining, a small quantity of mercury often causes profuse salivation, followed by ulceration and gangrene of the gums, lips, tonsils and cheeks, which proves speedily fatal. The same effects have been observed by Mr Henderson in the enlargement of the spleen, which is peculiarly prevalent among the natives of Hindostan; and in this country, the experience of the most recent authors upon the diseases of this organ is decidedly opposed to the use of mercury with any other view than as a purgative +. The spleen also undergoes other morbid alterations, of which the

[•] Observations on the Diseases of the Spleen.—Transactions of the Medical and Physical Society of Calcutta, vol. iii.

[†] Dr Bree, On Tumid Spleen, and Remarks on Splenitis. Med. Chirurg. Transactions, vol. ii. p. 85, and vol. iii. p. 155.—Dr Abercrombie, On the Diseases of the Spleen, Edin. Med. and Surgical Journal, vol. xxii. p. 1.—Dr Crane, Case of Diseased Spleen, with a few Observations on Diseases of that Viscus. Edin. Med. and Surg. Journal, vol. xix. p. 243.—Mr Henderson on the Diseases prevalent among the Natives of Hindostan. Edin. Med. and Surg. Journal, No. 84, p. 32.

most remarkable are, a diminution of its volume, along with an increase or diminution of its consistence; different alterations in its colour; abscesses and collections of purulent matter, occupying more or less of its substance, of which several cases are given by Dr Abercrombie in the paper alluded to above; deposition of tubercles, more or less numerous, but generally solid and of the miliary form: these, although sometimes found in adults, are much more frequently met with in children; hydatids, and cysts of different kinds, either lodged in its substance, or attached to its surface; and cartilaginous or osseous deposition in its capsule, which sometimes acquires an unusual thickness, and sometimes is so much softened as to occasion rupture of the organ *.

In addition to the authors already referred to, the following works may be consulted with advantage on the diseases of the liver and spleen:

LIND, On the Diseases of Warm Climates, London 1768, p. 88-97. PRINGLE, On the Diseases of the Army, London 1768, 6th edit. p. 145.

CLEGHORN, On the Diseases of Minorca, London 1779, p. 180.

CLARK, (JOHN) On the Diseases of long Voyages to hot Countries, London 1792, p. 403.

SAUNDERS, On the Liver, London 1793, p. 178.

Sir James Macgregor, Medical Sketches of the Expedition to Egypt from India, London 1804, p. 171.

FARRE, On the Morbid Anatomy of the Liver, London 1812-15.

PEMBERTON, On the Diseases of the Abdominal Viscera, 3d edit. London 1814, p. 19.

Elements of the Theory and Practice of Physic, by George Gre-GORY, vol. i. p. 289, London 1820.

[·] For a more particular account of the various morbid alterations of the Spleen and its Capsule, see the Article Splénite, par Andral, Dictionnaire de Médecine, tome xix.

Study of Medicine, by John Mason Good, London 1822, vol. ii. p. 387.

Dictionnaire de Médecine, tome ix. Article Foie, et tome xi. Article Hepatite, par G. Ferrus, Paris 1824.

ROSTAN, Cours de Médecine Clinique, tome ii. p. 543, Paris 1827. Archives Générales de Médecine, Deux Mémoires sur les Maladies du Foie, par Brierre de Boismons, tome xvi. pp. 1-381, Paris 1828.

427. Nephritis.—With the exception of gravel and calculi, the inflammation of the kidney depends upon the same predisposing and occasional causes as that of other parenchymatous organs. Adults, however, and those advanced in life, appear to be more subject to it than children, and it is less frequent in women than in men. It occurs more particularly in those who are subject to gout.

428. Nephritis is subject to the same terminations and consequences as the inflammation of other internal organs; but as it is comparatively rare to find the two kidneys affected at the same time, and as one is found sufficient to perform the function of both, the symptoms are generally exceedingly obscure, and often cannot be distinguished from those of enteritis or colic; and it not unfrequently happens, that in cases where very extensive morbid alterations of structure have been found after death, the kidney has not been suspected to be the seat of disease during life. The absence of morbid symptoms connected with the function of the kidneys, in cases where one of them has undergone extensive morbid alteration, may perhaps be accounted for by the facts, that the ureter of the side affected is most commonly found obliterated or impervious, and that the other kidney is very generally found much enlarged, sometimes to twice or thrice the natural size, but retaining its healthy structure.

The calices of the kidney are not unfrequently found dis-

tended by purulent matter. In these cases, there generally exists some obstruction to the passage of the urine, as by calculi lodged in the ureter, or in the pelvis of the kidney; and the substance of the gland appears to be gradually absorbed, in consequence of the pressure caused by this distension.

The late Dr Gregory met with a case in which one of the kidneys was converted into a sac containing fourteen pounds of purulent matter; and in another case, where there existed a large tumour of the abdomen, the nature of which could not be ascertained during life, it was found after death to be occasioned by a scirrhous enlargement or hypertrophy of one kidney, which had attained an enormous size, and weighed upwards of forty pounds. The kidney sometimes undergoes a remarkable diminution in size or atrophy, and this is always accompanied by an increase in the size of the other. A remarkable case of dropsy occurred lately in the Royal Infirmary, in which the right kidney was found converted into a cyst, partly osseous and partly membranous, nearly of the size and shape of an ostrich egg, and containing a large quantity of a limpid fluid, in which there floated numerous scales and flakes of pure cholesterine. The ureter of that side was obliterated, and the renal artery much diminished in size, while the kidney of the opposite side was nearly thrice the natural size, but otherwise healthy, with the renal artery and vein, and ureter much enlarged. The tumour had not been detected during life, probably in consequence of ascites, nor was the kidney supposed to be the seat of disease *. Cholesterine had been found, a short time previous to the occurrence of this case, in the fluid of

[•] Dr Bright, in his Medical Reports, lately published, has given numerous cases of morbid alterations of the kidneys, which may be referred to inflammatory action; but as they are connected with coagulable urine and dropsy, they will fall more properly to be considered under that head.

a hydrocele operated upon in the Royal Infirmary; but since the discovery by M. Chevreul, of this peculiar substance in biliary concretions, and more lately in the bile itself, I am not aware, with the exception of these two instances, that, in this country at least, it has yet been observed in its free state, or in any other part of the body *.

430. Dr Gregory was of opinion, that the objection of Dr Cullen to the use of blisters in nephritis might be disregarded, as from the time that blisters are now allowed to remain on, namely, from eight till twelve hours, and not for four and twenty as formerly was the case, there is but little chance of the cantharides being absorbed in such quantity as to produce any considerable irritation. The same remark will apply to the employment of blisters in cystitis.

454. Rheumatism.—The following observations on the distinction between syphilitic and rheumatic pains, occur in Dr Cullen's MS. lectures.—" In order to distinguish venereal pains from rheumatism, we may take notice, that in the former the bones are chiefly affected in the middle, and not painful on handling. And though sometimes it may be

[•] Since the above was written, cholesterine has been detected by Dr Christison, in the contents of a partly osseous, partly membranous cyst, similar to the one described above, which is preserved in the Anatomical Museum of the University, and which had been found within the cranium.

For a more detailed account of the diseases of the kidneys, see Dictionnaire de Médecine, Article Nephrite, par G. Ferrus, tom. xv.—See also, History of an uncommon enlargement of the Abdomen, from an affection of the Kidneys, by Mr Martineau of Norwich, Medical Commentaries, vol. ix. p. 282.—A Case of fatal Vomiting brought on by a disease of the Kidney, by William Kier, M. D., Medical Communications, vol. i. p. 127.—A Case of Sero-purulent Dropsy of the Kidney, by Dr Howison, Edinburgh Medical and Surgical Journal, vol. xviii. p. 557.—Case of a diseased Kidney, by Mr Pearson, Medical Observations and Inquiries, vol. vi. p. 236.—Wilson on the Urinary and Genital Organs, p. 271, London, 1821.

found that joints and muscles are affected with pain from this cause, yet, as in the case of scurvy, if venereal symptoms have preceded or attended, we may be sure of the pox being the cause of these pains *." The two affections, however, are frequently combined.

467-8-9. Although Dr Cullen has not, either here or in paragraphs 168-9, alluded to the use of Dover's powder as a sudorific, yet he has taken notice of its virtues in his MS. lectures; and in his treatise on Materia Medica, after giving very full directions as to its administration from his own experience, he adds, that in this way he has found it a highly useful remedy +. When the inflammatory diathesis is slight, or has already been subdued, opiates are much recommended by some authors, and appear to be useful, particularly in alleviating pain, even when they do not cause sweating. They are frequently combined with antimonials or calomel. In his treatise on Materia Medica, Dr Cullen states, that the Peruvian bark may prove a proper remedy when acute rheumatism has continued for some time, and when, after the use of antiphlogistic remedies and sweating, the inflammatory state may have abated, and the disease, in consequence, admit of considerable remissions, and become periodical; or when, as sometimes happens, it is combined with intermittent fever. Dr Fordyce and Dr Haygarth, who employed bark very extensively and freely in this disease, have recommended it in the strongest terms, as being equally efficacious in rheumatism as in ague. Its use, however, in the cases published by Dr Haygarth, was commonly preceded by general and topical blood-letting, or antimonial emetics and purgatives ‡.

Cullen's Works by Dr Thomson, vol. ii. p. 88, Edinburgh, 1827.

[†] Op. cit. vol. ii. p. 94-96.

George Fordyce on Fever, Dissert. iii.—Haygarth's Clinical History of Diseases, Part i. Acute Rheumatism, 1805. It was also recommended by Morton, Hulse, and Fothergill.

Dr Gregory did not find bark to answer well in his practice, nor does it appear to have retained in England the character it had once acquired from the testimony of the above-mentioned authors *. It will probably be found to be chiefly useful in the circumstances, and under the limitations laid down by Dr Cullen. In that peculiar remittent or intermittent pain, generally affecting one side of the head, partaking more or less of the characters of rheumatism, and known under the name of hemicrania, it has been found very efficacious. The best form, perhaps, in which bark can be administered, is that of the sulphate of quinine, one of the alkaloid principles of bark in combination with sulphuric acid +. Guaiac, in the form of the decoction of the wood, or the tincture prepared from the resin, and the vinum colchici, are also much employed, especially after blood-letting, and when the disease has been of some standing. The late M. Laennec thought tartar-emetic, in large doses, very efficacious in the cure of acute articular rheumatism, and considered that the duration of the disease was much shorter under its use, than under the ordinary mode of treatment. It did not however succeed so well when the muscles also were affected. I have seen patients with articular rheumatism under the charge of M. Laennec, who took daily from one scruple to half a drachm, with little or no inconvenience, and sometimes without any sensible effect on the stomach, the intestines, or the skin; but in the cases in which it appeared most useful, it generally caused some diaphoresis.

Although Dr Cullen does not allude, either here, or under the head of carditis and pericarditis, to the connection which is found to exist between this last affection and acute

^{*} See Elements of the Theory and Practice of Physic, by George Gregory, M. D. London 1820, vol. i. p. 323.—Scudamore, on Gout and Rheumatism, 2d edit. p. 546.—Study of Medicine, by John Mason Good, London 1822, vol. ii. p. 494.

[†] For some account of the sulphate of quinine, see Appendix on Fevers, p. 401.

rheumatism, it may be proper to mention, upon the authority of the late Dr Duncan, who had heard him deliver a lecture on this subject, that he was aware of the frequency and danger of this metastasis or coincidence. Dr David Pitcairn was the first who remarked, that persons subject to rheumatism were attacked more frequently than others with symptoms of organic disease of the heart; but we are indebted for the first distinct and accurate account of this peculiar affection to Sir David Dundas, who considered it to be not an uncommon occurrence, as he had himself met with nine or ten cases; and one which occurred to Dr Pemberton, and two to Dr Marcet, are subjoined to his paper *. Dr Wells also published a paper, with numerous cases, upon this subject +, and the three cases detailed by Dr Davis may be referred to the same head ‡. Since attention has been specially directed to this point, pericarditis coming on suddenly during the course, or on the recession of acute rheumatism, has been found to be a frequent as well as a very fatal disease. Dr Abercrombie, in a very valuable paper on the Pathology of the Heart &, after detailing several cases, makes the following general remarks upon the inflammatory affections of this organ: " This highly dangerous and insidious affection occurs to us most frequently in connection with rheumatism; but it may also supervene upon any other febrile disease, or it may come on in an idiopathic form, without any previous disorder. In its connection with rheumatism, it may either attack when the rheumatic inflammation has suddenly receded; or it may appear at the termination

^{*} Medico-Chirurgical Transactions, vol. i. p. 37.

[†] Trans. of a Society for the Improvement of Medical and Surgical Knowledge, vol. iii. p. 373.

[‡] An Inquiry into the Symptoms and Treatment of Carditis, by John Ford Davis, M. D. Bath, 1808, tol, yel come of all the con-

[§] Medico-Chirurgical Transactions of Edinburgh, vol. i. 1824. - See also Andral, Clinique Medicale, tome iii. p. 416-420.

of the disease, when the rheumatism has yielded in the ordinary way; or it may appear without any change in the rheumatic symptoms, and both complaints go on together." The symptoms in this affection are so various, that no one can be considered as constant. Strong action of the heart, sometimes so violent and tumultuous as to be felt over every part of the thorax, and even in the abdomen, is the symptom most generally observed, along with more or less oppression in the respiration. In some, the sense of oppression and anxiety, with tossing of the body, is so great, as to give the impression of impending suffocation; while, in others, the slightest motion of the body has caused so great anxiety, that the patient has been fixed in one position for a length of time. Pain in the region of the heart, increased by pressure on the epigastrium, tendency to syncope, cough, vomiting, delirium, are sometimes observed; the pulse, though commonly frequent, and peculiarly hard, jarring, and sometimes irregular, is yet so various, that no great dependence can be placed upon its indications. The sound, on percussion, over the situation of the heart, has been observed, in some cases, to become remarkably dull or obtuse; but in others, no such peculiarity has been observable. The symptoms are sometimes modified by being complicated with those of pneumonia, pleuritis, or gastritis.

The prognosis in this affection is very unfavourable. If it does not prove speedily fatal in its acute stage, or if it is not cut short by early and active measures, enlargement of the heart and palpitation, increased on exertion, generally continue; and after giving rise to asthma or dyspnœa, and a train of distressing symptoms, at length terminate fatally in the course of months, or sometimes of years, by inducing dropsical effusion. The disease sometimes assumes the chronic form, without going through the acute stage, and in this case the symptoms are very insidious and obscure. On dissection, in acute cases, there is generally found an

exudation or deposition of coagulable lymph, often of considerable thickness, and of honeycomb appearance, lining one or both surfaces of the cavity of the pericardium *. This is generally accompanied by adhesion, partial or universal, between the two surfaces. Serous or purulent effusion is also sometimes met with in the cavity of the pericardium. The muscular substance of the heart is sometimes, though rarely, found altered in colour and softened; and fibrous, cartilaginous, and osseous depositions are not unfrequently met with on its surface. In more chronic cases, the adhesion between the two surfaces of the pericardium is generally firmer, more intimate and organised, with little or no appearance of adventitious membrane. The heart is generally enlarged in size, and this appears to be chiefly confined to the left ventricle, and to be caused more frequently by a dilatation of its cavity, than by hypertrophy of its muscular substance, although, in some cases, the hypertrophy has been well marked. In a few instances, as in the second related by Dr Davis, the marks of inflammation are found chiefly or entirely on the inner surface of the heart, and especially about the valves. These appearances are most frequently observed in the left ventricle and auricle, and in the mitral valve. It may be proper here to state, that many cases of chronic disease of the heart which at length prove fatal by inducing dropsy, and where, on dissection, the heart is found enlarged, with thickening, induration or ossification of the valves can be traced to have supervened upon an attack of rheumatism. Of this, the eighth case related by Dr Abercrombie is a remarkable instance, to which may be added the eleventh, described by Dr Wells, and one by Sir David Dundas. Several similar examples have also

^{*} See Andral, Clinique Médicale, tome iii. p. 424. This was pointed out by MM. Corvisart and Laennec as a peculiar form of adventitious membrane, and had only been met with by them in the pericardium.

lately come under my notice, and it is worthy of remark, that in all these cases, the persons were not advanced in life.

In the small number of cases of this affection which have terminated in complete recovery, the treatment has consisted principally in early, full and repeated blood-letting. Some practitioners have, however, thought unfavourably of blood-letting in this affection; and it is easy to understand, that if employed after the effusion and adhesion have already taken place, and when organic disease is therefore inevitable, it may accelerate the fatal event. It may also be mentioned, that some practitioners, and more particularly Dr George Fordyce, have thought that those who were largely bled in acute rheumatism became more liable to a metastasis of the disease to some internal part; but we have not such records of the results of different modes of treatment, as can be held sufficient to decide this point.

The full action of mercury on the system has been confidently maintained to be adequate to arrest the deposition of lymph from inflammation, and therefore recommended in pericarditis from this and other causes, but experience has certainly not hitherto confirmed these views. Digitalis and opium, along with a very spare diet, and a complete state of rest, may be useful in reducing the inordinate action of the heart. Few, comparatively, of these cases prove fatal in the acute stage. Relief to the more urgent symptoms in the chronic stage may be obtained by small bleedings at intervals, by leeches, cupping, blisters, and perhaps the tartar-emetic ointment applied to the region of the heart. Diuretics often act well, with great temporary relief, in the later stages.

In many such cases, the palpitations and other uneasy feelings, after the disease has lasted for some time, become aggravated by a state of nervous irritability, which will admit of relief from anodynes, and from tonic remedies and regimen. And it is to be observed, that in some persons, in whom the disease has been well marked, the palpitations have gradually abated, and a tolerable state of health been restored, which has lasted for many years. This may probably have been owing to the quantity of effused lymph having been small, and, although perhaps causing adhesion between the heart and pericardium, not materially impeding its actions *.

472. Dr Cullen has not alluded to the irregular swelling of the ends of bones, and distortion of the joints, frequently observed in those who have suffered long and much from chronic rheumatism. This has been described by Dr Haygarth as a separate affection, distinct from gout or rheumatism, and occurring chiefly in women after the cessation of the menses, under the name of Nodosity of the Joints †. It is most frequently met with in advanced life, and in the smaller joints; but it is not confined to women, and is a commen sequel of chronic rheumatism, and often gives rise to complete immobility of the parts affected.

474-5-6. In his MS. lectures, Dr Cullen states that the success of electricity in the cure of chronic rheumatism is very various; that in some cases it has appeared to do harm, as the disease, upon quitting the joint, fell on some internal part, and that in some cases it has proved an entire cure. He had no experience of the success of the internal use of essential oil of turpentine, or of mercury in any form. He found Dover's powder the most effectual remedy, and he imputed its failure in genuine rheumatism always to imperfect or faulty administration. He considered even topical blood-letting a doubtful remedy; but leeches and blisters

<sup>For farther remarks on pericarditis, see Appendix on this subject, p. 459
† Clinical History of Diseases. On the Nodosity of the Joints, p. 149.</sup>

appear in many cases to be useful auxiliaries in the treatment. Arsenic has been recommended by Dr Bardsley and other practitioners. Dr Gregory did not find it successful in his trials. Soft leather, worn next the skin, appears to be one of the best modes of obviating the effects of external cold in chronic rheumatism. Dr Marcet has published the case of a gentleman who cured himself of severe sciatica, which had long resisted all the ordinary modes of treatment, by sweating induced by exercise on foot with very warm clothing, and frequently repeated *.

The following books may be consulted upon rheumatism and pericarditis, in addition to those already mentioned:

FOWLER'S Medical Reports on Rheumatism, London, 1795.

BARDSLEY'S Medical Reports, On Chronic Rheumatism, p. 1. London, 1807.

Burns, On Diseases of the Heart, pp. 58-163, Edinburgh, 1809.

BRODIE, On Diseases of the Joints, Chap. i. On Inflammation of the Synovial Membrane, London, 1818.

CORVISART, Sur les Maladies du Cœur, 3me ed. p. 4, Paris, 1818.

Bertin et Bouillaud, Traité des Maladies du Cœur, p. 238, Paris, 1824.

Cox, On Acute Rheumatism and its Metastasis to the Heart, London, 1824.

LAENNEC, Traité de l'Auscultation médiate et des Maladies des Poumons et du Cœur, 2d. ed. tome ii. p. 651, Paris, 1826.

Louis, Recherches Anatomico-Pathologiques, p. 253, Paris 1826.

CHOMEL, Article Péricardite, Dictionnaire de Médecine, tome xvi. Paris, 1826.

492. Gout.—In his MS. lectures, Dr Cullen states, that he considers "that the history of the disease is as fully de-

Medico-Chirurgical Transactions, vol. iii. p. 310.

livered by Dr Sydenham as can well be done: he laboured under the disease himself for eighteen years before he wrote; and there is no doubt but that he was particularly attentive to it in many other persons." Accordingly, Dr Cullen's very accurate description of regular gout is taken in a great measure from Sydenham; and although the truth of Sydenham's history has been called in question by some, he says, "It is well that I can add, in favour of Dr Sydenham, the testimony of almost all the physicians. Dr Hoffman, instead of giving his own account, transcribes the history of Sydenham; Boerhaave does no other; and Dr Warner owns that he could do no better than translate Dr Sydenham's history of the disease *."

- 494. Those women are most liable to gout who are most addicted to the use of strong liquors, even although they are not intemperate. Hence it is not only most common among men, but among women who live in the counties of England in which cider is much used. Its greater frequency in men may depend partly on the male constitution, and partly on their being more intemperate.
 - 498. Cases of gout in the lower orders, and among labourers, are exceedingly rare, though they live intemperately. When they do occur, they may generally be referred to great intemperance, or to strong hereditary predisposition. Dr Hamilton, who was physician to the Royal Infirmary for upwards of forty years, never met there with more than two cases of gout; and Dr Gregory, after conducting nineteen clinical courses, and treating in that time upwards of 2000 patients, had only met with two, one of which was not a well marked case. It is seldom met with among common soldiers, though they are by no means temperate;

^{*} Cullen's Works by Dr Thomson, vol. ii. p. 108.

while, on the other hand, it is frequent among their officers. It is certainly rare in those who do not drink strong liquors; and Dr Gregory considered it doubtful whether it ever occurs in countries where no strong liquors are drank. Two or three cases of gout, observed within some years in the Royal Infirmary, occurred in persons accustomed to the free use of porter. According to Dr Scudamore, it is by no means uncommon in the London hospitals, and this may be attributed to the free and general use of the same liquor. Distilled spirits, although very hurtful in other respects, do not appear to have the same effect in inducing gout. The evident practical inference from what has been stated, is the propriety of gouty people abridging their diet and increasing their exercise.

516. Gouty concretions or chalk stones were ascertained by Dr Wallaston to be chiefly composed of the urate of soda *. It appears also that much lithic or uric acid is separated during or after a paroxysm, either in the form of chrystals, or in combination with soda, animal matter, and other constituents of the urine, in the form of the pink, reddish-brown, or lateritious sediment †.

526. In addition to what has been mentioned in this paragraph, as to the distinction between gout and rheumatism, Dr Cullen, in his MS. lectures, has laid down the following circumstances as sufficient to establish the diagnosis: Rheumatism may be known by its cause, the evident application of cold; the first attack of gout is rarely brought on

^{*} Philosophical Transactions, 1797.—For the treatment of gouty concretions, see Mr Moore, Medico-Chirurgical Transactions, vol. i. p. 112, and Scudamore on Gout, &c. p. 421, 5d edit.

[†] Prout, Inquiry into the Nature and Treatment of Gravel, Calculus, &c. p. 124, London, 1821.

in this way. Hereditary communication may often be considered as the cause of gout, but never of rheumatism. The affection of the stomach, and, particularly, some symptoms of indigestion, precede a paroxysm of gout; while rheumatism only affects other parts by the inflammation and fever it excites. Gout seldom affects muscular parts separate from the joints, while rheumatism frequently does; and while the chief seat of gouty pains is in the joints, rheumatism runs along the course of the muscular and communicating membranes. In rheumatism the pain is often spread over a considerable part of the body, so that a number of joints are frequently affected together, a circumstance very rare in gout, in which the pain moves only from one foot to the other, nor is it ever considerable in both at the same time. Rheumatic pains are more common in the shoulders, elbows, and wrists, and rare in the joints of the thumb and finger; in the lower extremities they are in the knees and ankles, but rare in the ball of the great toe. Gout almost constantly returns at stated periods, particularly in spring and autumn; but the recurrence of rheumatism is not steady, and is subject to the action of exciting causes, and it often occurs only once during Although instances occur of gout in early life, these are comparatively rare. As a general rule, it may be stated, that gout seldom appears before the meridian of life, or the age of thirty-five; rheumatism, on the contrary, while it may affect at any period of life, in nine cases out of ten appears in persons under the age of thirty-five, and frequently under the age of twenty-five. Rheumatism belongs to both sexes, while gout is more common in men. In conclusion, Dr Cullen states, that " the rheumatism is an accidental disease, not owing to any particular predisposition or propagation from parents to children. It is topical, and does not affect the nervous system. The gout is, on the other hand, a constitutional disease, is general, and affects the viscera and nervous system *." It is true that rheumatism does not, like gout, affect the sensorium; but there are affections commonly considered rheumatic, which appear to have their seat in parts of the nervous system; as in sciatica, where the pain appears to be seated either in the neurilemma or medulla of the nerve, or in rheumatic affections of the side of the head and face, which are sometimes accompanied by palsy of the portio dura.

543. Dr Gregory was of opinion, that the predisposition to gout might sometimes be eradicated in young persons, or at least the disease entirely prevented, by regulating their way of life, even after the occurrence of well-marked paroxysms; and this experiment he made upon his own person. He had hereditary gout at the age of twenty-three years, at which period of life his father, who suffered severely from it, and died suddenly at the age of forty-eight, had also become affected. From that time forward he restricted himself to a moderate allowance of animal food, and drank little wine, although he never, as has been said, entirely gave up the use of fermented liquors; he always, however, found himself better without them. His diet for a long time was chiefly vegetable, and he took much exercise both on foot and on horseback. He lived to the age of sixty-eight, and never had any decided return of gout. He concluded from this and other cases, that if the proper course be commenced early in life, a complete cure can generally be obtained, and with perfect safety. This, however, cannot be promised at any period of life, or of the disease. If a person does not begin to regulate his conduct with this view before the age of forty, it will probably be too late; and the longer the disease has continued, the more difficult will be the cure, and the greater danger will result from the attempt.

^{*} Cullen's Works, by Dr Thomson, vol. ii. p. 117.

556-7. It may be said of attempts to cure the gout by means of medicines, that they are in general improper and hurtful, and often dangerous, when attention is not at the same time paid to diet and regimen. Dr Cullen mentions in his MS. lectures, that he had occasion to know, or to be exactly informed of the fate of nine or ten persons who had taken the Portland powder for the time prescribed. These persons never had a regular fit, or any inflammation of the extremities for the rest of their lives. Soon after finishing the course of their medicine, however, they became affected with dyspeptic complaints and lowness of spirits; and in every one of them, before a year had passed, some hydropic symptoms appeared, which gradually increased in the form of hydrothorax or ascites with anasarca, and in two, or at most three years proved fatal. Dr Heberden speaks more favourably of this remedy, and doubts whether it produces the bad effects imputed to it *; but the experience of Dr Cadogan + is in accordance with that of Dr Cullen, and not one of those cured in this way, whom Dr Gregory knew, outlived three years. This remedy has now fallen into neglect. Ginger and guaiac were also highly extolled; they appear to act in the same way, to have produced the same bad effects, and have shared the same fate. The eau medicinale was introduced as a specific in gout since the time of Dr Cullen, and was in vogue for a considerable time. It was taken during the paroxysm, and generally acted as an emetic, purgative, diuretic, or diaphoretic, and in most cases with speedy relief to the pain. But its action was uncertain, and often found to fail upon repetition; and the deleterious effects which have frequently followed its use, have led to its being very generally condemned and

[•] Commentaries on the History and Cure of Diseases, 2d edit. London, 1803, p. 54.

[†] Dissertation on the Gout, &c. London, 1771.

abandoned, at least in this country. Dr Gregory thought that its power in removing or relieving a paroxysm was chiefly to be attributed to its sensible effects, and was convinced, from his own observation, that its ultimate effects, where no alteration of regimen or mode of life was at the same time adopted, were as pernicious as those of the Portland powder. It is apt to induce hypercatharsis or cholera, and to be followed by dyspeptic or dropsical symptoms *. Its virtues appear to depend upon a vegetable alkaloid, probably that called veratrine, which has been procured from the root of the veratrum album, and the colchicum autumnale. Each of these substances had previously been supposed to be the active ingredient in the eau medicinale. vinum colchici is now much employed, chiefly on the recommendation of Sir Everard Home +, in mitigating the paroxysms, and when due attention is paid to the diet and regimen, it does not appear to be followed by any bad effect, although its action is irregular and uncertain. Dr Mason Good strongly recommends, from personal experience, the external use of cold water and other refrigerants, when the constitution is sound and vigorous ‡.

558-9. The carbonates or supercarbonates, and the aërated alkaline water are perhaps the best forms in which alkalis can be administered to gouty persons, and are often beneficial to their dyspeptic symptoms. Dr Gregory used often to prescribe magnesia to be taken habitually along with rhubarb.

563. According to Dr Scudamore, when the inflammatory diathesis is strongly marked by a full hard pulse, hot skin, scanty and high coloured urine, with costive bowels,

[•] For further evidence of the deleterious effects of the eau medicinale, see Scudamore, Op. cit. 3d edit. p. 200.

[†] Philosophical Transactions, 1816-17.

[‡] Study of Medicine, vol. ii. p. 520.

general bleeding will be certainly indicated, as it would be were no gout present. Dr Cullen states in his MS. lectures, that vomiting in the beginning of the paroxysm is generally of service. Dr Scudamore * and Dr Sutton + have strongly recommended the use of purgatives, combined with diuretics.

574-79. The remedies employed in the atonic gout are essentially the same as in dyspepsia, or affections of the stomach occurring in persons who are not gouty.

580. In cases of retrocedent gout affecting the stomach, Dr Heberden found opiates and aromatics more efficacious, and attended with less risk, than large quantities of wine or ardent spirits ‡. Dr Cullen, in his MS. lectures, mentions an instance of a person taking with impunity two pounds of brandy or strong rum to produce a cure in this case. He also states, that he has by degrees gone to the dose of ten grains of opium twice a-day; and when the disease was overcome, the dose of opium was gradually diminished, with no apparent bad effect. The affection of the heart which sometimes occurs seems to proceed from that of the stomach; accordingly, it is found to be relieved by stimulants taken into the stomach. Emetics, purgatives, antacids, and absorbents are recommended, and may be employed according to the indications §.

581-2-3. In regard to the affections of the head, stomach, and lungs, whether spasmodic or inflammatory, described by the older authors in retrocedent or misplaced gout, Dr Gregory's doctrine used to be, that physicians ought to be

^{*} Op. cit. pp. 180 and 183.

[†] Tracts on Gout, &c. London, 1813.

[†] Commentaries, p. 52.

[§] Dr Gregory used to recommend the laxatives to be taken in the form of tincture.

aware of their frequent occurrence in gouty persons, and of their very rapid progress in many such cases; but that when these affections exist, they must be treated according to their own nature and urgency, just as they would be in persons not gouty; and in several such cases, when they had been so treated with good effect, he found them to be speedily succeeded by well-marked gout in the extremities, afterwards running its usual course. Nearly the same rule of practice has been recommended by Dr Heberden *, and more lately by Dr Scudamore †.

In addition to those already referred to, the following more recent works on gout may also be consulted:

FORBES, On Gravel and Gout, London 1793.

Rush, Observations on the Nature and Cure of Gout, &c. 1797.—
Medical Inquiries and Observations.

KINGLAKE, A Dissertation on Gout, London 1804.

PARKINSON, Observations on the Nature and Cure of Gout, &c. London 1805.

Hamilton, (Robert,) Letters on the Cause and Treatment of Gout, Lynn 1806.

KING, A Treatise on Gout, London 1811.

JOHNSON, (JAMES,) Practical Researches on the Nature, Cure, and Prevention of the Gout. London 1818.

Veitch, On the Use of Leeches in the Commencement of the Paroxysm, Edinburgh Medical and Surgical Journal, vol. xvii. p. 310.

587. Small-Pox.—In reference to the period of the eruption, Dr Cullen has stated in his MS. lectures, as his reason for pointing out in his definition the third day as that on which

[•] Op. cit. p. 45.

[†] Op. cit. 3d edit. p. 439.

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it commences, that in a thousand cases which he had seen, the eruption had not been delayed to the fourth day *. It appears, however, from later observations, that in mild and distinct cases, the eruption is often postponed to the fourth, or even to the fifth day, while in severe and confluent cases, it sometimes shows itself as early as the second. It may be stated generally, that when the fever is violent, and the eruption appears early, it will be profuse and confluent, and the reverse will be the case when it appears late. This diversity in the period of eruption in natural small-pox seems to depend upon differences of individual constitution; and to this cause, combined with the effects produced by unknown states of the atmosphere, and by situation and treatment, are ascribed the deviation from the usual course of maturation, which the pustules are sometimes observed to undergo t.

592-3. In his MS. lectures Dr Cullen says, " It has been alleged that the small-pox occupy the internal as well as the external surface. Dissections, however, have shewn that they go into the fauces, but no farther ‡." It is now generally admitted in this country, that pustules, somewhat modified in their appearance, have been traced to the inflamed mucous membrane of the larynx, the trachea, and the principal branches of the bronchiæ. According to some of the French Pathologists, particularly MM. Rostan and Guersent, pustules of similar character are sometimes found in the œsophagus, the stomach, and the small and large intestines §. This, however, has been denied by others. Dr Cullen states in his MS. lectures, that the most frequent

[#] Cullen's Works by Dr Thomson, vol. ii. p. 149.

[†] Thomson's Historical Sketch of Small-Pox, London, 1822, p. 5.

[†] Op. cit. p. 153.

[§] Dictionnaire de Médecine, Article Variole, par M. Guersent.

consequences of the small-pox are inflammations of the eye or of the lungs, or tubercles of the lungs; but the inflammation of the mucous membrane of the lungs, or bronchitis, is perhaps the most common, as well as the most important and dangerous internal affection which accompanies or succeeds the eruption of small-pox in this country. The French Pathologists consider the inflammation of the mucous membrane of the stomach and intestines as one of the most frequent complications which occur in small-pox. This, although occasionally seen, is certainly less common in this country, both in small-pox and in continued fever.

599-600. It has generally been observed, that epidemics of small-pox are more virulent in warm than in cold seasons, and the same remark has been made with respect to climates. But different epidemics in the same place, and under the same circumstances, vary much in severity, as well as in the extent of their diffusion. No age is exempt from the disease; it occurs, though rarely, in old age; and instances are on record where it has been observed in the fœtus, sometimes even when the mother has not been affected *. Some persons, although fully exposed to it, appear to resist the contagion, while others, it is now well ascertained, have been twice, or even more frequently attacked by the disease +. Some of those who have repeatedly resisted the contagion, certainly applied, have subsequently become affected; but the circumstances which have rendered the constitution more liable to the disease at one time than at an-

^{*} Mead, Dimsdale, Smellie, Mauriceau, Husson, Jenner, Medico-Chirurgical Transactions, vol. i. p. 271.—John Hunter, Phil. Trans. 1780. Kite, Memoirs of the Med. Society of London, vol. iv. p. 295.

[†] Hennen on Eruptive Diseases, Edinburgh Medical and Surgical Journal, vol. xiv. p. 409.—Thomson's Historical Sketch of Small-Pox, 1822, p. 9.—Bryce on the Cow-pox, Edinburgh, 1809, 2d edit. p. 62.—Thomson on the Varioloid Epidemic, 1820, p. 50.

other have not been clearly ascertained. The mortality in the natural small-pox, at least in late epidemics, has varied from one in three to one in six; while from inoculation, before the introduction of vaccination, it was about one in from three to five hundred.

630. It has lately been proposed by M. Bretonneau to cauterize the pustules, by means of the nitrate of silver, about the third day of the eruption, with the double view of cutting short their progress towards maturation, and of preventing the cicatrices. His experiments have been repeated by MM. Velpeau, Guersent, and Serres, who appear to have succeeded in fulfilling the first, at least, of these indications, but without effect on the progress or duration of the fever.

Vaccination.—A detailed history of vaccination would be incompatible with the plan and the limits of the present undertaking; and as it is familiar to most persons, it may perhaps be sufficient to refer to some of the most approved works upon the subject*. It may, however, be stated generally, that soon after the publication of Dr Jenner's Inquiry, vaccination, although it met at first with much opposition, spread rapidly over Europe, and has now become universal in every civilized country of the new as well as of the old continent. In some countries where it is enforced by law, small-pox is said to have been nearly eradicated. According to Dr Willan and Dr Bateman, "the characteristic of

^{*} Jenner on the Variolæ Vaccinæ, London, 1798.—Jenner's Further Observations, London, 1799.—Pearson on the Cow-pox, London, 1799.—Ring on the Cow-pox, London, 1801-3.—Willan on Vaccine Inoculation, London, 1806.—Bryce on Cow-pox, with a test, 2d ed. Edin. 1809.—George Bell, A Treatise on the Cow-pox, 2d ed. 1807.—Brown on Vaccination, Edinburgh, 1809.—Moore's History and Practice of Vaccination, London, 1817.

this eruption is a semitransparent, pearl-coloured vesicle, with a circular or somewhat oval base, its upper surface, until the end of the eighth day, being more elevated at the margin than in the centre, and the margin itself being turgid, shining, and rounded, so as often to extend a little over the line of the base. This vesicle is filled with clear lymph, contained in numerous little cells, that communicate with each other. After the eighth or ninth day from the insertion of the virus, it is surrounded by a bright red circumscribed areola, which varies in its diameter, in different cases, from a quarter of an inch to two inches, and is usually attended with a considerable tumour and hardness of the adjoining cellular membrane. This areola declines on the eleventh and twelfth day; the surface of the vesicle then becomes brown in the centre; and the fluid in the cells gradually concretes into a hard rounded scab, of a reddish brown colour, which at length becomes black, contracted and dry, but is not detached till after the twentieth day from the inoculation. It leaves a permanent circular cicatrix, about five lines in diameter, and a little depressed; the surface being marked with very minute pits or indentations, denoting the number of cells of which the vesicle had been composed *." When a vesicle, with these characters, appeared after the insertion of matter from a similar vesicle in the human subject, or from the original disease either in the cow or the horse, passed through the regular course, and left a cicatrix with the appearances described above, it was for some years considered that this affection gave complete and permanent security from the contagion of small-pox.

Mr Goldson appears to have been among the first who openly called in question the permanent protection afforded

Willan's Treatise on Vaccination, p. 9.—Bateman on Cutaneous Diseases,
 London, 1813, p. 213.

by vaccination *. He was of opinion, from the cases which he had met with, that its preservative influence did not extend beyond a certain time. Although numerous cases were published about the same time, and in subsequent years, by many practitioners, in different parts of the kingdom, all of which tended to confirm the truth of Mr Goldson's statement as to the occurrence of small-pox in persons who had undergone vaccination, yet many endeavours were made to invalidate this evidence, by impugning the accuracy of the observations, and by asserting, that in some of the cases published, the eruptions were not those of small-pox; and in others, that vaccination had been imperfect. This question has, however, been completely set at rest; first, By the fact, that some persons vaccinated by Dr Jenner himself, in whom the disease had gone through the regular course, and been considered quite satisfactory; and others who had gone through the test proposed by Mr Bryce, and considered decisive as to the constitutional affection; have, nevertheless, been afterwards attacked by small-pox, generally in a mild and modified, but sometimes in a severe form †; and, secondly, By the occurrence of numerous well-authenticated cases of modified small-pox, after perfect vaccination, during the severe epidemic which prevailed some years ago, not only over a great part of Scotland, and in some parts of England, but in Germany, Holland, Switzerland, and particularly in some parts of France ‡.

^{*} Cases of Small-pox subsequent to Vaccination, Portsmouth, 1804. Also, Some recent Cases of Small-pox subsequent to Vaccination, &c. London, 1805.

[†] Edin. Med. and Surg. Journal, vol. xiv. p. 389.—London Medical and Surgical Journal, vol. xxvi. p. 82.—Monro on Small-Pox after Vaccination, Edinburgh, 1818, p. 160.

[†] Hennen on Eruptive Diseases, Ed. Med. and Surg. Journal, vol. xiv. p. 409.—Thomson, Account of the Varioloid Epidemic in Edinburgh and other parts of Scotland, &c. 1820.—Cross, History of the Variolous Epidemic which occurred in Norwich in the year 1819, &c. London, 1820.—Bent on the Epidemic which is the part of the Variolous Epidemic which occurred in Norwich in the year 1819, &c. London, 1820.—Bent on the Epidemic which is the part of the Variolous Epidemic which occurred in Norwich in the year 1819.

In his Historical Sketch of the Small-pox, Dr Thomson makes the following summary: " Since the publication of my 'Account of the Varioloid Epidemic,' I have seen above two hundred additional examples of small-pox in Edinburgh, making in all eight hundred and thirty-six cases of this disease, which have come under my observation since June 1818. Of the whole number, two hundred and eighty-one have occurred in individuals who had neither had small-pox nor cow-pox, and of these, fully more than one in four has died; seventy-one had previously passed through small-pox, and of these two have died; and four hundred and eightyfour had undergone the process of vaccination, and of this number, one only has died; results which evince beyond the power of cavil, the beneficial effects of vaccination in protecting the human constitution from the dangers of smallpox, and the great advantages which must ultimately arise from the universal adoption of this practice *."

A few of the eruptions considered by Dr Thomson, and some observers, as cases of small-pox in vaccinated, or even in unvaccinated persons, might by others be referred to the head of chicken-pox; and a certain number, even although the protecting disease had appeared to go through the regular course, and had left distinct cicatrices, might be considered by some as doubtful cases, and as occurring after spurious cow-pox, or imperfect vaccination; but after every allowance is made for these sources of fallacy, the evidence is so strong and decisive, that probably no practitioner who witnessed the epidemic in this part of the country at least, will hesitate in ascribing to the contagion of true small-pox

demic at Derby, London Medical and Physical Journal, vol. xl. p. 461.—Berard et Lavit, Essai sur les Anomalies de la Variole, et de la Varicelle, Montpellier, 1818.—Pougeus, Petite Vérole, chez plus de deux cents individus vaccinés, observée à Milliau en 1817.—Dictionnaire de Médecine, tom. xxi. Article Vaccine.

Op. cit. p. 279.

the great majority of the cases which occurred among the vaccinated *. As to imperfection in the previous vaccination, as marked by an imperfect cicatrix on the arm, it is to be observed, that many of those who have been apparently perfectly protected by previous vaccination, (although fully exposed to the contagion,) have had such imperfect cicatrices. See Cross, Op. cit.

The following passage occurs in the Report of the National Vaccine Establishment, of the 11th of February 1828: "It is true, that cases are reported to us very often of the occurrence of small-pox after vaccination; but we have reason to believe, that the number of those who fall into this safe, though sometimes severe disease, after vaccination, is not greater than that of those who formerly died by inoculation, whilst that practice prevailed †." The proportion of vaccinated persons affected, during the epidemic in this country and in Norwich, appears to have been considerably greater; but this may have depended, in part, upon the peculiar virulence of the disease, as shown by its unusual diffusion and great mortality among the unvaccinated, and by the fact of its having, in some instances, given rise to natural small-pox for the second time ‡. It has been sup-

^{*} For farther evidence on this subject, and particularly as to the modified disease in vaccinated persons, proceeding from, and giving rise to, regular small-pox in the unvaccinated, see Review of Dr Thomson on the Varioloid Epidemic, Ed. Med. and Surg. Journal, vol. xvi. p. 225.—Monro on Small-Pox demic, Ed. Med. and Surg. Journal, vol. xvi. p. 225.—Monro on Small-Pox after Vaccination, p. 209; and Cross on the Varioloid Epidemic in Norwich, p. 84, 87, and 284.

[†] The members of this Board, who had for some years opposed the evidence of the occurrence of small-pox in the vaccinated, and had contended, that the cases adduced resulted from imperfect vaccination, or were not true small-pox, in their Report for 1820, acknowledged that the pretensions of vaccination to the merit of a perfect and exclusive security in all cases against small-pox, were admitted, at first, rather too unreservedly.

[‡] Review of Mr Cross on the Variolous Epidemic in Norwich, Ed. Med. and Surg. Journal, vol. xvii. p. 121.—Review of Dr Thomson on the Varioloid Epidemic, &c. Id. vol. xvi. p. 239, 40; and Op. cit. p. 30.

posed, that the vaccine virus has degenerated in its quality, by passing through a succession of persons; and that this circumstance might account for the more frequent occurrence in late years of small-pox after vaccination. No facts, however, have been brought forward in support of this hypothesis, and there is some evidence in favour of the opposite conclusion *.

The complete, perhaps permanent, security against the small-pox, which vaccination affords, at all events, to many persons, has frequently been put to the test of experiment. Several of Dr Gregory's children were inoculated with smallpox, at different periods after vaccination, with a local effect only; and Mr William Wood has detailed a very satisfactory experiment of this kind, with the same result, on seven children in one family †. The occurrence, therefore, of modified small-pox, in persons who have gone through the regular process of vaccination, can probably be referred only to peculiarity of individual constitution, and to the character of the prevailing epidemic during which it may be observed. All practitioners, however, who have met with this affection, seem to be agreed, that in a very great majority of the cases the disease is so much modified in those who have undergone regular vaccination, as to be deprived of all danger; and of the few fatal cases which have been recorded, it may be observed, that in some, the evidence of previous vaccination was not satisfactory, and in others the disease had either been anomalous in its characters, or complicated with other affections. The mode of alteration is peculiar and very uniform. The eruptive fever, and the symptoms during the first few days of the eruption, are nearly as in the natural disease; but about the fourth or fifth day of the eruption, the inflammation about the pustules rapidly abates, their maturation is either much hastened, or

Thomson on the Varioloid Epidemic, &c. p. 315.

[†] Edinburgh Medical and Surgical Journal, vol. xiv. p. 400.

abruptly terminated by incrustation, and the fever completely and often suddenly subsides. It may be stated in conclusion, with reference to the practice of inoculation for the small-pox, which, in Scotland at least, has been entirely superseded by that of vaccination, that it would appear from the facts hitherto recorded, that if the preventive power of small-pox already undergone, against subsequent attacks of the disease, is greater than that of cow-pox, the modifying power of cow-pox, on the other hand, has been found to be superior to that of small-pox.

631-2. Chicken-pox.—Since the more frequent occurrence of modified small-pox during the late epidemics, it has been found, that the short duration and vesicular character of the eruption, given by Dr Cullen and Dr Heberden as characteristic of chicken-pox, is not sufficient, in many cases, to distinguish it from the eruption of modified small-pox; and Dr Thomson, conceiving that all the appearances commonly described under the name of chicken-pox might be produced by the contagion of small-pox, has been led, in consequence, to call in question its existence as a separate disease *. This, however, is still only matter of opinion, and, as such, remains open to discussion. It would therefore be improper to enter at any length upon the subject in this place; but it may be stated generally, that other practitioners, whose attention has been directed to it, particularly Mr Bryce and Dr Abercrombie, while they acknowledge the close resemblance which often exists between the two eruptions, at the same time contend that there is an essential difference between the two affections, and that there are certain distinctive marks by which the vesicles of chicken-pox, especially when seen early in the eruption, may be known

Thomson on the Varioloid Epidemic, &c. p. 44.

from those of modified small-pox. Of these the most important is the early period at which the eruption of chicken-pox becomes vesicular. This frequently takes place in the course of the first twenty-four hours; and, according to Mr Bryce, the eruption is distinctly vesicular from the commencement *.

The greater number of the more modern works on the subject of small-pox, vaccination and chicken-pox, have been referred to above; but Moore's History of the Small-pox, Mason Good's Study of Medicine, and Dr George Gregory's Practice of Physic, 3d edit. may also be consulted.

633-4-5-6. Measles.—Dr Willan considers this disease as appearing under three varieties of form; 1st, The rubeola vulgaris of Dr Cullen and other systematic authors: 2d, Rubeola sine catarrho, which is only important in so far as it is said to leave the susceptibility to the contagion of the first variety; the appearance and course of the eruption are the same, but there is no catarrh, ophthalmia or fever, and the second eruption frequently appears three or four days after the first: and, 3d, Rubeola nigra, so called from an unusual appearance of the measles about the seventh or eighth day, when the rash becomes suddenly livid with a mixture of yellow. It is devoid of inconvenience or danger † Measles, in its common form, has been observed, although rarely, to affect the same person a second time. Dr Baillie has published several instances of this occurrence in two

[•] For a more particular account of the state of this question, see Review of Dr Thomson on the Varioloid Epidemic, &c. Edin. Med. and Surg. Jour. vol. xvi. p. 242; and for the marks considered diagnostic of chicken-pox, see Letters of Mr Bryce, Dr Abercrombie, and Dr Alison, in Dr Thomson's Work.

[†] Bateman on Cutaneous Diseases, 2d edit. p. 56. 1815.

different faihilies *. The latent period of this disease is generally from ten to fourteen days, but it has occasionally been protracted as long as eighteen or twenty; and the eruption sometimes appears on the third, at other times not till the sixth day from the commencement of the fever, or even later.

638. To this description of the eruption may be added the distinctive character first observed by Dr Willan. The small, red, and nearly circular spots of which the eruption is composed, as they increase in number, coalesce and form small patches of an irregular figure, but approaching nearest to that of semicircles or crescents. These patches are intermixed with the single circular points, and with interstices of the natural colour of the skin. This appearance can generally be recognised upon attentive examination, and is often exceedingly obvious. The colour of the eruption is much less vivid than that of the scarlet fever, and the tume-faction of the eyelids is sometimes so great as to close the eyes.

640-1. In his MS. lectures, Dr Cullen states, that "the measles are certainly attended with a catarrh in the whole Schneiderian membrane of the nose, in the fauces and bronchiæ, which continues at least during the time of the eruption; and the same determination frequently takes place to the alimentary canal, and more or less diarrhæa occurs upon the receding of the measles. It was Sydenham's sagacity which discovered that this was of the inflammatory kind, and to be cured by bleeding." "When the eruption has ceased, a general inflammatory diathesis appears by several

^{*} Transactions of a Society for the Improvement of Medical and Chirurgical Knowledge, vol. iii. p. 258. See also Report of the Carey Street Dispensary for 1815-16, Edin. Med. and Surg. Journal, vol. xii. p. 244.

symptoms; and generally, though no particular determination does immediately appear, the diathesis remains for a long time after, so that a variety of external and internal causes afterwards direct it to a particular part. Thus, when the catarrh itself has subsided with the fever and eruption, such persons as have had the measles are more apt to have it renewed in a more violent degree, and to have various inflammatory affections in the lungs and other parts." "The whole danger arising, or to be suspected from the measles, is from more or less of the topical inflammation produced by them: and which, I say, may be in different parts of the system, although there is a more particular determination to the lungs, and peripneumony is more commonly their consequence than any other disease *."

It may be stated generally, that the principal immediate danger in measles results from the bronchitis, which, as it has been observed in this country at least, forms so frequent and so prominent a feature of the disease. In warmer and more equable climates it commonly assumes a milder form, but a severe epidemic is sometimes observed to occur. In cases which prove fatal, with quick, short, oppressed, and sometimes noisy breathing, with cough and fever, either coming on or aggravated after the fading of the eruption, there is generally found great accumulation of viscid and opaque mucus in the large and small branches of the bronchiæ, with thickening and increased vascularity of the mucous membrane. These appearances sometimes extend to the trachea and the larynx, and more rarely, when symptoms of croup have existed during life, these parts have been found lined by an adventitious membrane. The marks of inflammation sometimes also, (though by no means uniformly,) extend to the parenchymatous substance of the lungs, portions of which are then found loaded with serum, and so much

^{*} Cullen's Works, by Dr Thomson, vol. ii. pp. 168-170.

condensed as to sink in water. In some cases where the disease has not been so rapidly fatal, the lungs have been found studded with miliary tubercles in considerable numbers. The disease sometimes proves fatal with convulsions or symptoms of hydrocephalus, particularly in young children. In these cases the appearances on dissection are seldom very satisfactory. According to Dr Armstrong, the liver next to the lungs is the organ most liable to inflammation in the measles. It is generally allowed, that bloodletting, in severe cases of bronchitis, especially in weakly subjects, must be employed very early, that it may have a fair chance of success; and therefore there must be many cases of measles, in which it would be wrong to wait for the decline of the eruption (as recommended by Dr Cullen and Dr Willan) before using this remedy.

The epidemics of measles which prevailed in Edinburgh during the years 1807-8, and 1815-16, were unusually severe and fatal, especially in young children, and in many the disease assumed a peculiar character. The eruption in the last of these did not generally appear before the fifth or sixth day. It was preceded by the usual catarrhal symptoms; but the fever was typhoid, with much debility and drowsiness, approaching in the later stages to coma, sometimes with delirium; frequently with vomiting and diarrhœa. In a majority of the fatal cases, as well as in some which recovered, the eruption, which was less elevated, of a darker colour, and attended with less heat of skin than usual, disappeared very early, generally within the first twenty-four hours. After its recession, the catarrhal symptoms often increased, with quick, short, and oppressed breathing, sometimes diarrhœa, and almost constantly retching; and these symptoms sometimes occurred without any eruption. An aphthous state of the mouth and tongue frequently occurred, but was not confined to the fatal cases. On dissection, a considerable accumulation of mucus was always found

in the bronchiæ; and in some there were marks of inflammation and condensation of the substance of the lungs. In some cases, the eruption, which had almost or entirely receded on the second day, re-appeared after the use of the warm bath and opiates, and continued nearly the usual time. Those who recovered from the state above described appeared to improve chiefly under the use of wine and cordials, given pretty freely *. Dr Hamilton junior states, that he has only seen a very few instances of measles in children, where he had no hesitation in sanctioning blood-letting. He recommends chiefly laxatives, and the warm bath; and when the cough and oppression of breathing are urgent, more active purgatives and blisters. As soon as the state of the cough will permit, he recommends nourishing diet, with wine and tonics +. This disease appears to be frequently the exciting cause of the deposition of tubercles in the lungs and other organs, of tabes mesenterica, and of strumous ophthalmia. The diarrhœa succeeding measles often requires opiates and mild laxatives, and occasionally bleeding, as remarked above.

650. Dr Bateman states, that the cold affusion has been employed, not only with impunity, but with benefit in measles ‡. More caution, however, is required in the application of cold in this disease than in scarlet fever; and, perhaps, it ought only to be employed in cases where there is little or no pectoral affection, where the heat of the surface is very great, and where the eruption is copious and of good colour.

Report of the New Town Dispensary, for Autumn 1816, Edinburgh Medical and Surgical Journal, vol. xiii. p. 121.

[†] Hints for the Treatment of the Diseases of Infancy and Childhood, Edinburgh, 1824, p. 155.

[‡] Edinburgh Medical and Surgical Journal, vol. ix. p. 406; vol. x. p. 258.

The apparent connection between small-pox and measles is remarkable. By Morton, and many of the older authors, they were considered as varieties of one and the same disease, and they were supposed to exert a modifying influence upon each other. They have been frequently supposed to co-exist, or to succeed each other in a short space of time. They were particularly observed in conjunction, according to Dr Macbride, in the Foundling Hospital of Dublin in the year 1769, and Dr Russell has published two cases of the same kind *. An opinion was entertained by the late Dr Watt, that while the mortality of small-pox has been much diminished since the introduction of vaccination, that of measles has been increased proportionally, or even in a greater ratio; and that this depended upon the circumstance, that the modifying influence of natural small-pox over measles was no longer exerted to the same extent as formerly +. It appears, indeed, from the tables taken from the bills of mortality in Glasgow, which he has given, that during a period of thirty years, from 1783 to 1812, the deaths from measles increased more than eleven times, while those from smallpox were reduced to nearly a fifth, and that the mortality, which formerly did not amount to one per cent., exceeded, on an average of the last six years of that period, ten and a half per cent. This is confirmed, to a certain degree, by the statement of Sir Gilbert Blane, that the mortality from measles in London, during the ten years which preceded 1813, had been doubled, while that from small-pox had been reduced to one-half ‡.

^{*} Trans. Med. and Chirurg. vol. ii. p. 90. Cases of the same kind are also reported by Vogel, De Haen, Home, Roux, and Guersent; and in the Report of the New Town Dispensary, for the Winter 1818-19, Edin. Med. and Surg. Journal, vol. xv. p. 314.

[†] A Treatise on Chincough, with an Inquiry into the relative mortality of the principal diseases of Children, Glasgow, 1813.

[†] Medico-Chirurgical Transactions, vol. iv. Supplement to ninth Article, p. 466.

But the mortality of measles has been at all times various in different epidemics, and had increased before the introduction of vaccination; and it appears from a table which Dr Watt has given from the bills of mortality in London, from 1700 to 1801, that the number of deaths from smallpox was much greater in the last half of the century, (probably caused by the introduction and prevalence of inoculation,) than in the first, and the number of deaths from measles during the same period was doubled. Dr Stanger ascertained, that of 131 patients in the Foundling Hospital, who had undergone vaccination, and afterwards had measles, two only died; while of 131 cases of measles in children who had been affected with small-pox, eleven terminated fatally; from which, it would appear, that in those cases at least, previous vaccination did not render the disease more fatal, and previous small-pox did not render it more mild *. It appears that Dr Watt, in drawing up his tables, did not take into account the gradual improvement in the total mortality during the period he refers to, and had been led to overrate the increase of the deaths from measles, by referring the infantile deaths to the general mortality, instead of the population. He has, however, adverted to the fact, that as a greater number of children now escape altogether the contagion of small-pox, and others go through the disease in its modified form, a greater number must necessarily be exposed to that of measles. This, with the peculiar prevalence of epidemics of measles towards the close of the period included in Dr Watt's tables, particularly in 1808 and 1811, may go far to explain the great apparent increase in the mortality which they exhibit. In confirmation of this fact, it may be stated, that it appears from the data furnished in the Statistical Account of Glasgow, published in 1820, by Mr Cleland, that the increase in the mortality from measles

Note to Supplement, referred to above, p. 473.

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subsequent to 1812, although considerable, when compared with the first periods in Dr Watt's tables, is by no means so great as that which appears in the last, that is to say, from 1806 to 1812 *. Upon the whole, however, to whatever cause it may be ascribed, there has been a decided increase in the mortality from measles, in Glasgow, Edinburgh, Manchester, and London, since the commencement of the century, although a similar increase has not been observed in some other parts of Great Britain, or in Germany +. Inoculation for measles, although attempted, does not appear to have succeeded, since it was first performed by Dr Francis Home.

In addition to those already referred to, the following works upon this subject may be consulted:

Home's Clinical Experiments, &c. Edinburgh, 1780, p. 90. Percival, Medical Observations and Inquiries, vol. v. p. 282. HEBERDEN'S Commentaries, 2d ed. chap. 63, p. 313.

Roux, (G.) Traité sur la Rougeole, Paris, 1807.

ARMSTRONG, On Scarlet Fever, Measles, &c. 2d edit. London, 1818,

Dictionnaire de Médecine, tom. xviii. Article Rougeole, par Guersent. RAYER, Traité des Maladies de la Peau, Paris, 1826, tom. i. p. 16.

651. Scarlet Fever .- It is now very generally admitted, that the affection described by Huxham and Fothergill, under the title of the ulcerous or malignant sore throat, and

^{*} For further and more complete details on this subject, see Review of Mr Roberton on the Mortality of Children, Edin. Med. and Surg. Journal, vol. xxix. p. 373.

[†] Op. cit. vol. x. pp. 92, 120, 263; vol. xxvi. p. 162,—Patrick Macgregor on the Comparative Mortality of Measles, &c. among the Children in the Military Asylum at Chelsea, from 1804 to 1814, Medico-Chir. Transac. vol. v. p. 435.

considered as a separate disease under the name of the cynanche maligna by Dr Cullen, is a variety of the scarlatina anginosa or maligna; and there are various instances on record, which show that the affection of the throat, without efflorescence on the skin, has proceeded from the contagion of the common scarlet fever, while, on the other hand, the scarlatina simplex of Dr Cullen has been traced to the contagion of the cynanche maligna, or even of the ulcerated sore throat without eruption. It is probable, that the various forms under which the disease appears, depend partly on individual constitution, and partly on the character or constitution of the epidemic. Adults are less susceptible of the contagion of scarlet fever than children, and many persons resist it entirely, although freely exposed to its influence. It has been observed to occur twice in the same person, particularly by Dr Heberden and Dr Binns, and by the late Dr Gregory; but such cases are rare. Among two thousand cases, Dr Willan never saw a recurrence of the disease, under any of its forms.

Dr Willan and Dr Bateman have described four varieties of this disease, in three of which the efflorescence occurs on the skin; namely, the scarlatina simplex, anginosa, and maligna; and in the fourth, only in the mouth and throat; to which, therefore, the appellation of scarlatina has never been applied *.

656. In the scarlatina anginosa the heat of the surface rises higher than in any other disease of this climate; it has been frequently stated to rise to 108° and 110°; and Dr Currie mentions that he had known it to rise as high as 112°, the greatest heat which he ever observed in the human body †.

^{*} Bateman on Cutaneous Diseases, 2d edit. p. 70.

[†] Medical Reports, &c. 3d edit. vol. ii. p. 428, Liverpool, 1804.

The affection of the throat generally commences at the same time as the efflorescence on the skin. Occasionally, however, it does not appear till later, or it commences along with the febrile symptoms. Dr Bateman states, that the rash often appears on the second, although not unfrequently postponed to the third day, or later. It is commonly less uniform over the body, and sometimes it vanishes the day after its appearance, and reappears partially at uncertain times, but without any corresponding changes in the general disorder *. The swelling and inflammation of the throat often disappear along with the efflorescence, without ulceration. Whitish sloughs and superficial ulcerations are, however, not unfrequently observed on the tonsils, velum pendulum, and pharynx, attended with the secretion of much viscid mucus; and these sometimes continue and increase after the decline of the eruption, aggravating and prolonging the fever. Swelling of some of the lymphatic glands in the immediate neighbourhood of the parotids is a very frequent occurrence, and sometimes increases to such a degree as to constitute the chief danger.

The dropsical swelling which frequently succeeds the scarlet fever is often an affection of more importance and danger than Dr Cullen and other authors have supposed. It commences in the face, from which it spreads to the extremities; when the anasarca is confined to these parts, it commonly soon yields to the ordinary treatment, as mentioned by Dr Cullen in 664+. Occasionally, however, symptoms of serous effusion within the head take place, and prove speedily fatal; and more frequently the anasarca, (sometimes joined with ascites,) is connected with oppressed breathing

^{*} Bateman on Cutaneous Diseases, 2d edit. p. 73.

[†] For a more detailed account of this affection, see a paper by Dr Wells, on the dropsy which succeeds scarlet fever, Transactions of a Society for the Improvement of Med. and Chirurg. Knowledge, vol. iii. p. 167.

and frequent pulse, which resist the use of purgatives and diuretics, but commonly yield to early blood-letting *. On dissection, in fatal cases of this kind, unequivocal marks of recent pneumonia or pleurisy have often been found. According to Plenciz, more persons die of this affection in Vienna than of the original fever †; and it appears from a statement made by Burserius, that in the cases which proved fatal in his time, marks of inflammation were frequently found in the lungs and other internal organs.

659-63. We are indebted to Dr Currie of Liverpool, and Dr Hamilton senior of Edinburgh, for the introduction of the cold affusion and the more free and general use of purgatives in this form of the disease ‡. The combination of these two powerful auxiliaries to the antiphlogistic treatment, has in many cases superseded the use of blood-letting, especially when the usual symptoms are present at the commencement. Dr Currie urges "the superior advantage of using the affusion early in the disease; and the propriety of ascertaining that the skin is dry, and the heat of the patient greater than natural, in all cases, especially in such as are advanced, and where, of course, the strength is considerably impaired ||." When employed as early as the second or third day, under the restrictions mentioned, and repeated as often as the heat of surface appears to demand it, the cold affusion, if it does not succeed in cutting short the disease,

^{*} See Dr Abercrombie, on certain Dropsical Affections which are successfully treated by blood-letting, Edin. Med. and Surg. Journal, vol. xiv. p. 163; also same work, vol. xiv. p. 479; vol. xv. p. 58; vol. xvi. p. 545.—Burserii Instit. Med. Pract. vol. ii. p. 82.

[†] Tract. de Scarlatina, 1762.

[‡] Medical Reports on the Effects of Water, &c. 3d edit. vol. ii. p. 422.— Observations on the Utility and Administration of Purgative Medicines, 2d edit. Edinburgh, 1806, p. 24.

^{||} Op. cit. vol. ii. p. 458.

is very generally followed by a remarkable remission in the intensity of the symptoms. Dr Bateman states, that he had been in the constant habit of resorting to the practice at every opportunity in scarlatina, attending to the simple rules laid down by Dr Currie; and that he never witnessed any inconvenience, much less any injury from it, but an uniformity in its beneficial operation, of which no other physical expedient, with which he was acquainted, affords an example. He found the direction to apply it "whenever the skin is hot and dry," amply sufficient. It must be admitted, however, that the cases of scarlatina, in which the eruption is florid and persistent, and the skin permanently hot and dry, and to which the affusion is best adapted, have never been represented as the most dangerous. When the disease is farther advanced, and the heat of skin less intense, or if there exist other objections to the use of the cold affusion, frequent cold or even tepid washing or spunging of the body with vinegar and water may be employed with much relief and advantage, and is generally very grateful to the feelings of the patients themselves *. Cold acidulated drinks and gargles are also very grateful and beneficial. Since their good effects were clearly pointed out by Dr Hamilton, the moderate use of purgatives in scarlatina anginosa has become very general; and Dr Hamilton and Dr Bateman state, that they may supersede the use of emetics, so strongly recommended by Dr Withering and others. They are combined in the early stages with the cold or tepid affusion, but are frequently continued through the whole course of the disease, and even during convalescence, with the view, according to Dr Hamilton, of obviating the subsequent anasarca. Dr Armstrong mentions, that when the disease

^{*} For further evidence in favour of the cold affusion, see Currie, Op. cit. vol. ii. chap. xxii.—Bateman on Cutaneous Diseases, 2d edit. p. 79.—Armstrong on Scarlet Fever, &c. 2d edit. p. 40.

days of the second stage, ulcers very seldom form in the fauces *. When the inflammation and tumefaction of the tonsils are considerable, and render the act of deglutition difficult, blisters to the external fauces have been much used by some practitioners; but in children particularly this is attended with the risk of additional irritation, and of ulceration or gangrene. Blood-letting, however, is frequently resorted to in scarlatina anginosa, when there exist well-marked symptoms of active inflammation in the tonsils or some other internal organ, or when the cold or tepid affusions and purgatives fail to afford relief, and the symptoms still run high. Cordials and tonics are now only given in the later stages, if much debility be present, and very seldom during convalescence.

The treatment of the scarlatina maligna, or cynanche maligna, described from paragraph 311. to 317. formerly differed considerably from that employed in the scarlatina anginosa, as the debility was more marked, and the putrid or gangrenous tendency was supposed to be much greater. But the difference between the affections cannot be accurately marked. In many cases which ultimately assume the typhoid form, with bad ulceration and great debility, there is, nevertheless, a short previous stage of excitement, in which the antiphlogistic remedies may be used with good effect. In a few, where there is great prostration of strength, with strong tendency to coma in the very beginning of the disease, (such as have been described by Dr Armstrong under the name of the congestive form,) it has been stated that blood-letting, accompanied or followed by the diligent application of external warmth, has had apparently the effect of altering the disease to its more usual and more ma-

[•] Op. cit. p. 47.

nageable form; but, in general, the truly typhoid symptoms in this disease, frequent and soft pulse, slight or partial elevation of temperature without efflorescence, or with a slight eruption of a livid colour, dry tongue, delirium verging on stupor, subsultus tendinum, &c. are combated (though often unsuccessfully) by wine and other stimuli, combined with gentle laxatives and tepid spunging of the surface *.

In addition to those already referred to on the different forms of the scarlet fever, the following works may also be consulted:

HUXHAM, On the Malignant Ulcerous Sore Throat, London, 1750-57.

FOTHERGILL, On the Ulcerous Sore Throat, London, 1751.

WITHERING, Account of the Scarlet Fever and Sore Throat, London, 1779.

CLARK, (JOHN,) Observations on Scarlet Fever, with ulcerated Sore Throat, London, 1780.

Sims, On the Scarlatina Anginosa, which appeared in London 1786, Memoirs Med. vol. i. p. 388.

Rowley, On the Causes of the great many Deaths among Adults and Children in Putrid Scarlet Fever, &c. London, 1793.

PEART, Practical Information on Malignant Scarlet Fever, &c. London, 1802.

HEBERDEN'S Commentaries, 2d edit. chap. vii. p. 18, 1803.

BLACKBURNE, Facts and Observations concerning the Preservation and Cure of Scarlet Fever, &c. London, 1803.

Hamilton, On the principal Diseases of Infancy and Childhood, Edinburgh, 1824.

RAYER, Traités des Maladies de la Peau, tom. i. p. 55, Paris, 1826. Dictionnaire de Médecine, tom. xix. Art. Scarlatine.

[•] For a further account of the congestive forms of Scarlatina Maligna, see Dr Armstrong, Op. cit. pp. 11-55.

ease has lately been called in question by Dr Maclean and others in this country, and by M. Lassis in France *. These authors deny the necessity, and even the utility, of sanitary laws and quarantine, and contend, that the plague is an epidemic disease, depending only upon a peculiar state of the atmosphere, and not communicable from one person to another by near approach, or by actual contact. But this opinion seems to be in direct opposition to the fact, of which there can be no reasonable doubt, that Dr Whyte and Mr Von Rosenfeldt, who both disbelieved in the contagious nature of the plague, fell victims to voluntary inoculation.

The history of the introduction and rapid diffusion of the plague at Marseilles in 1720, at Moscow in 1771, and at Malta in 1813, (that diffusion being evidently proportioned to the amount of intercourse between the healthy and the sick, and not to any other circumstances in the situation or condition of the population,) and the complete security afforded both to families and communities by entire insulation and seclusion, exemplified in each of these places, even when surrounded by the disease, appear sufficient to establish, on very satisfactory grounds, the two following propositions, laid down by a late writer on this subject †: 1st, That the plague is most liable to affect those persons who approach patients affected with it, and that in proportion to

Maclean on Epidemic and Pestilential Diseases, 2 vols. London, 1817-18.
 —Maclean on the Evils of the Quarantine Laws, and the non-existence of Pestilential Contagion, London, 1824.—Westminster Review, Nos. V. and VI.
 —Lassis, Causes des Maladies épidémiques, moyens d'y remédier et de les prevenir, Paris, 1822.

[†] Quarterly Review, No. LXV. Art. 9.

the nearness of the approach: 2dly, That those who avoid all intercourse with persons affected with the plague generally escape the disease, and that in proportion to the care with which they avoid it.

The facts collected by Dr Maclean only tend to show, that certain other properties or laws, distinct from the contagious nature, which had been ascribed to diseases of this class, and to plague among the rest, are not true of the plague; but these facts do not bear directly on the question of the contagious nature of the disease.

The question as to the contagious nature of this, or any other disease, cannot be decided by any general reasoning, but only by facts bearing directly on the point, Whether those who have close intercourse with the sick do or do not become affected, cateris paribus, in a much larger proportion than others?

The evidence taken before a Select Committee of the House of Commons on this subject in 1819 appears to be of itself nearly decisive as to the question of contagion. Out of twenty-two witnesses examined, nineteen of whom were medical men, Dr Maclean and Dr Mitchell alone denied the contagious nature of the plague. It appeared, from some of the evidence, "that the extension and virulence of the disorder is considerably modified by atmospheric influence;" but the committee did not see any thing in the rest of the evidence which would induce them to dissent from the received opinion, that it is a disease communicable by contact only*. Dr Calvert, who witnessed the plague at Malta, while he considers contact or vicinity, particularly if long continued, as the most certain mode of communication, is of opinion, that the contagious principle of the disease

^{*} Review of the Report from the Select Committee on the Doctrine of the Contagion in the Plague, 1819, Ed. Med. and Surg. Journal, vol. xvi. p. 109.

" is diffusible in the atmosphere to a distance greater or less from an infected body, according to the climate and season of the year, and possibly to other peculiar states of the atmosphere *." Although the disease commences at various seasons, it has very generally been found most active and virulent during the summer months, has frequently disappeared during the cold of winter, and again commenced its ravages with returning warm weather.

686-95. With regard to the cure of the plague, little can be added to what has been laid down in the text. It appears, from the statements of Sir James M'Gregor in Egypt, and Mr Stafford in Malta, that a considerable number of patients, in whom they succeeded in speedily affecting the mouth by calomel and mercurial ointment, ultimately recovered +. Dr Whyte used the lancet very freely, and every one of his patients died; and Mr Stafford states, that he was informed, that the first sixty patients were bled by the Maltese physicians, and of these fifty-nine died, and blood-letting was consequently abandoned. Sir Arthur Faulkner t states, that emetics, if they could be given at the commencement of the disease, were considered useful. Purgatives were pretty freely employed both in Egypt and Malta. Frictions over the whole body with oil, and coverings of oiled silk, have been strongly recommended by some as the most effectual preservatives against contagion; and in Constantinople, Cairo, and other places where the plague is endemic, it has been observed, that those who, by their occu-

^{*} On the Plague in the Island of Malta, Medico-Chirurgical Transactions, vol. vi. p. 1.

[†] Medical Sketches of the Expedition to Egypt, from India, p. 138, London, 1804.—Observations on the Plague at Malta, by William Stafford, Edin. Med. and Surg. Journal, vol. xii. p. 13.

[‡] A Treatise on the Plague, designed to prove it contagious, &c. London, 1820.

pation, have the surface of the body frequently exposed to the contact of unctuous substances, appear to be less liable to the contagion of the disease. A similar fact was also observed during the plague in London in 1665 *.

The appearances observed, on dissection of the few bodies which have been examined, have not been satisfactory. According to Sir James M'Gregor, the liver was generally found much enlarged and diseased, but without deposition of purulent matter; and the glandular system much diseased +.

In addition to the works on the plague already referred

to, the following may be consulted:

PLUMPTRE, Historical Relation of the Plague at Marseilles in 1720, London, 1805.

DE MERTANS, Translation of his Account of the Plague at Moscow in 1771, London, 1779.

RUSSELL, (PATRICK,) On the Plague, London, 1791.

HEBERDEN, Observations on the Increase and Decrease of different Diseases in London, and particularly of the Plague, London,

Assalini, On the Plague, 1804.

PEARSON, (RICHARD,) Description of the Plague, London, 1813. Armstrong, On Typhus Fever, &c. 3d edit. p. 243, London, 1819. Tully's History of the Plague in the Islands of Malta, Gozo, Corfu, Cephalonia, &c. London, 1821.

696. Erysipelas.—Dr Willan has placed erythema among the exanthemata, and erysipelas among the bullæ. Of the first, he has described six varieties; namely, the E. fugax,

[•] Mason Good's Study of Medicine, 2d edit. vol. iii. p. 150-157, London,

⁺ Medical Sketches, p. 142.

E. læve, E. marginatum, E. papulatum, E. tuberculatum, and E. nodosum; and of the last, four, namely, phlegmonous, cedematous, gangrenous, and erratic. Doubts, however, have been entertained of the propriety of some of these divisions. The erythema papulatum, tuberculatum, and nodosum are not uncommon, and are easily recognised; they are often tedious complaints, but seldom demand any particular modification of the usual antiphlogistic treatment. See Dr Batemen's Synopsis.

In treating of erythema, Dr Cullen has not alluded to one variety, which, from its occurring not unfrequently after the use of mercury, even in small quantity, has obtained the name of Erythema mercuriale. It appears to be especially induced in some constitutions by exposure to cold and wet during a mercurial course, and to be a protracted, and occasionally a very dangerous, and even fatal, affection. It is fully described by Dr Bateman, under the name of Eczema rubrum.

703-4-5. Although doubted by Dr Cullen, the fact has since been well ascertained, that when erysipelas on the face recedes or fades, delirium and coma frequently succeed, and prove very dangerous. Dr Gregory met with a case of this kind, in which the erysipelatous inflammation was brought back to the face by means of blisters, and the patient recovered *.

It appears probable, from the occasional prevalence of erysipelas in hospitals, even with every attention to cleanliness and ventilation, that it is sometimes propagated by contagion. A variety of facts and cases, collected by Dr Wells, including the testimony of Dr Pitcairn and Dr Baillie, lead

^{*} See also Ferriar's Medical Histories and Reflections, Chapter on the Conversion of Diseases, vol. ii. p. 102.

to the same conclusion *; and more lately the cases published by Dr Stevenson †, and Dr Gibson ‡, and others, seem to leave no doubt of its contagious nature during the epidemics they have described. In many of these cases it was connected with an affection of the throat, and sometimes of the larynx, which appeared to be of erysipelatous character, and the mortality was very considerable. The occasional contagious nature of this disease is, however, still denied by some recent authors ||.

Erysipelas of the face does not commonly occur before the age of puberty, and is most frequently observed in women, in men of delicate habits, and in those who have resided long in warm climates.

712. Although Dr Cullen states that erysipelas phlegmonodes, occurring in other parts of the body, frequently ends in suppuration, yet he does not allude to its termination in gangrene, and says that these cases are seldom dangerous. Erysipelas of the extremities, however, going on to extensive and tedious suppuration, ulceration or gangrene, is by no means a rare occurrence, and is always a dangerous one. "It is often accompanied with symptoms of low fever and delirium. The colour of the affected part is a dark red; and scattered phlyctænæ, with a livid base, appear upon the surface, which frequently terminate in gangrenous ulcerations. Even when it terminates favourably, suppuration and gangrene of the muscles, tendons, and cellular sub-

Transactions of a Society for the Improvement of Medical and Surgical Knowledge, vol. ii. p. 213.—See also, Thesis by Dr Richard Bright in 1813.

[†] Cases of Contagious Erysipelas, and its connection with a severe affection of the Throat, Transactions of the Medico-Chirurgical Society of Edinburgh, vol. ii. p. 128.

[†] On the Epidemic Erysipelas which appeared at Montrose in 1822, id. op. vol. iii. part i. p. 94.

Rayer, Traité des Maladies de la Peau, vol. i. p. 109.

stance, often take place, producing little caverns and sinuses, which contain an ill-conditioned pus, together with sloughs of the mortified parts, which are ultimately evacuated from the ulcers. It is always a tedious and precarious disease, and irregular in the period of its termination *." Such cases are called by Dr Bateman erysipelas gangrænosum; but similar symptoms, perhaps more frequently, accompany erysipelas of the head or neck not tending to gangrene, but marked by a livid colour of the eruption.

Infants shortly after birth are subject to a variety of gangrenous erysipelas, which is often fatal. In the milder cases, according to Dr Underwood, it often appears on the extremities, and soon terminates in suppuration; in more violent cases it is generally seated about the pubis, and extends towards the umbilicus and upon the thighs. The skin assumes a purple or livid colour with vesications, which

very frequently terminate in sphacelus. It has most commonly been observed in lying-in hospitals +.

That remarkable and very dangerous affection which Dr Duncan has minutely described under the name of Diffuse Inflammation of the Cellular Texture; although it frequently occurs and proves fatal without any cutaneous inflammation, yet bears in its general characters a greater resemblance to E. phlegmonodes in its aggravated form, than to any other disease, and is therefore alluded to in this place. It sometimes comes on spontaneously in the trunk or extremities, but more frequently succeeds to some slight external injury, as venesection, or a puncture received in dissection, and the inflammation spreads often very rapidly, with exten-

^{*} Bateman's Practical Synopsis, 2d edit. p. 128.

[†] See Underwood on the Diseases of Children, 7th edit. vol. i. p. 34, London, 1819.—Also Dr Garthshore, Medical Communications, vol. ii. art. 5.

[‡] Transactions of the Medico-Chirurgical Society of Edinburgh, vol. i. p. 470.

sive suppuration in the subcutaneous and intermuscular cellular substance, and a remarkable alteration in the colour and consistence of the muscles of the affected part. The fever generally runs high, but often soon assumes a typhoid character, with great debility, depression and delirium. There is commonly great pain, not confined to the spot where the injury has been received, and often commencing in the axilla. In some cases, Dr Duncan states that the secondary inflammation runs its course and terminates in extensive suppuration, without any redness of the skin being perceptible; and that in all true cases of this disease, the cutaneous inflammation is secondary, and the result of the progress of the disease from the cellular tissue to the skin. It sometimes terminates fatally in a few days, and at other times is protracted for weeks. The antiphlogistic treatment, both local and general, in the early stages, appears to be indicated, and has been generally employed, but often with-Free incisions into the affected parts seem to out success. have been attended with good effects, and in the later stages wine, opium, and tonics, are often clearly demanded *.

713. In his MS. lectures, Dr Cullen states, that he is aware of the opinion of some practitioners in London, that erysipelas of the face is to be cured by bark, and that he can imagine that there are cases which are not phlegmonic erysipelas; but that in this country he had not met with one case of this kind; and of fifty cases, he had seen forty cured by bleeding as plainly as any phlegmasia whatever. He is of opinion, therefore, "that bleeding is as necessary here as in any phlegmasiæ, where we allow the fever to depend up-

^{*} For a more detailed account of this affection, see Dr Duncan's paper referred to above.—Travers on Constitutional Irritation, pp. 198-508, London, 1826, and Review of same work in Edin. Med. and Surg. Journal. vol. xxvi. p. 311.

on the topical affection; and farther, not only on the first appearance of suspicion, but at any time in the after progress of erysipelas, bleeding may be practised, and is necessary, in proportion to the degree of fever attending, and to the violence of the topical inflammation *." The antiphlogistic treatment recommended here, and in 708 and 709, which has been long established in this part of the country, appears to have become gradually more general, even in London, where it was long deprecated as dangerous, by some of the highest medical authorities, who in their treatment of erysipelas trusted principally to bark. Even Dr Mason Good, in the 2d edition of his Study of Medicine, published in 1825, states, that " in almost every instance there is evidently a diminished vascular action;" and that, with one or two exceptions which he mentions, "he can conceive very few ordinary cases in which the lancet has a chance of being serviceable, while the application of leeches always exasperates the efflorescence †." But leeches are now very generally and freely employed, and no bad effects appear to follow their use; nor are the leech bites observed to be more apt to become inflamed, ulcerated, or gangrenous, in erysipelas than in other affections. Dr Duncan has published some cases in illustration of the good effects of blood-letting in this disease ‡; and Mr Lawrence has published an elaborate essay, recommending a nearly similar practice.

No better general summary of the experience of modern practitioners in erysipelas can be given than that of Mr Lawrence. "The treatment," he says, "of erysipelas, like that of any other inflammation, must be modified according to the age, constitution, previous health and habits of the patient, and the period of the complaint. In asserting generally that the antiphlogistic treatment is proper, I speak

[·] Cullen's Works by Dr Thomson, vol. ii. p. 188.

[†] Vol. iii. pp. 75-76.

Edin. Med. and Surg. Journal, vol. xvii. p. 537.

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of the beginning of the disease, when the original and proper character of the affection is apparent; and I am decidedly of opinion, that, in some shape or degree, such treatment will always be beneficial in that stage. In many instances, active antiphlogistic measures are of the greatest service in lessening the severity both of the local and general symptoms. In others, the administration of calomel with aperients, and of diaphoretics with low diet, will be sufficient. When the affection occurs in old and debilitated subjects, the powers of life are soon seriously impaired, and our efforts must be directed rather towards supporting them, than combating the local affection. I have often seen such patients labouring under erysipelas of the face in its advanced stage, with rapid and feeble pulse, dry and brown tongue, recovered under circumstances apparently desperate, by the free use of bark and wine *." The same treatment is employed in Germany +, and in France ‡.

Incisions and scarifications of the part affected with erysipelas were practised in the time of Dr Friend, and were recommended by Mr O'Halloran § and Mr Pott ||. More lately, this practice has been revived by Mr Copland Hutchison ¶ and Dr Dobson **; and is highly recommended by Dr Armstrong, and by Mr Lawrence, who has employed it extensively in the phlegmonous erysipelas ++. The incisions

See also Dr Armstrong * Medico-Chirurg. Transactions, vol. xiv. p. 42. on Typhus Fever, &c. 3d ed. p. 401; and Dr George Gregory's Practice of Physic, 3d edit. p. 307.

[†] J. P. Frank, De curandis Hominum Morbis, lib. iii. p. 54.

[‡] Rayer, Traité des Maladies de la Peau, vol. i. pp. 122, 123, Paris, 1826.

[§] Complete Treatise on Gangrene and Sphacelus, London, 1765.

Chirurgical Works, 1783, vol. iii. p. 59.

[¶] On the Treatment of Erysipelas by Incision, Medico-Chirurgical Trans. vol. v. p. 278; and Practical Observations in Surgery, 2d ed. p. 118, 1816.

^{**} On the Treatment of Erysipelas by numerous punctures, Id. Op. vol. xiv. p. 206.

^{††} Id. Op. vol. xiv. p. 67.

in these cases appear to act partly by relieving the distention and pain of the affected limb, partly by giving a free exit to pus and to sloughs, and partly by the quantity of blood which flows from the divided vessels. Compression by means of bandages applied over the whole of the inflamed limb, as strongly recommended by M. Velpeau *, does not appear to have been attended with the same good effects in this country.

The following modern works may be consulted on this subject, in addition to those already mentioned:

Pearson, (John,) Principles of Surgery, 1808.

Weatherhead, An Essay on the Diagnosis between Erysipelas, Phlegmon and Erythema, London, 1819.

BUTTER, On Irritative Fever, Devonport, 1825.

JAMES, On the different Species of Inflammation, p. 233, London, 1821.

EARLE, On Diffused Cellular Inflammation, London Med. and Phys. Journal, vol. lvii. p. 1.

Arnott, Cases of Erysipelas, Id. Op. vol. lvii. p. 193.

730-31. Urticaria.—This affection appears commonly to be connected with a disorder of the stomach, and generally arises from a peculiar idiosyncrasy as to certain articles of food; particularly shell fish, mushrooms, almonds and other vegetable bitters, green cucumbers, acid and even ripe fruits. It is sometimes attended with swelling of the head or even the body, pain and sickness at the stomach, with vomiting, and is characterized by an extreme degree of itching and tingling of the skin, especially during the night, or upon exposure, and by the elevations of the cuticle, usually called wheals, along with a crimson efflorescence. It is sometimes

Memoire sur l'Emploi du Bandage compressif dans le Traitement de l'Erysipèle Phlegmoneux, &c. Archives Générales de Médecine, tom. xi. pp. 192-395.

chronic and exceedingly obstinate, and is increased by scratching the part. Dr Willan has described six varieties; but perhaps the only important distinction is into the acute and chronic. Gentle emetics and laxatives, with the use of the warm bath, or sea-bathing, is the treatment most commonly employed, and very generally successful, in the acute, while the chronic form is found to resist almost all modes of treatment. The general practice in it is of the tonic kind, and anodynes are often employed. Dr Cullen's reference to Dr Heberden's paper on the nettle rash ought to have been, Medical Transactions, vol. ii. art. 11. p. 173.

732. Pemphigus.—In his MS. lectures, Dr Cullen states that there is a disease frequent among the common people in this country, which produces pretty large blisters. "They are from the beginning, from the size of a pea to that of a hazle-nut, and some larger: they appear after a very slight fever. They are full of a clear watery liquor, not changeable into pus; these break in a day or two, and the cuticle falls off in scales. It has also occurred to Sauvages; but so far as I have seen it, it is a slight affection, and requires no particular remedy *." It is now very generally admitted, that pemphigus is not essentially connected with any fever, but may appear during the course of various febrile affections or chronic diseases. Dr Gregory met with a case of hæmatemesis and amenorrhea, in which it occurred twice to a great extent. It spread into the mouth and fauces; and from the symptoms it probably extended to the stomach and intestines. A similar case, along with some others, has been published by Dr Stephen Dickson +. It does not ap-

[·] Cullen's Works by Dr Thomson, vol. ii. p. 199.

⁺ Transactions of the Royal Irish Academy, vol. i. p. 47.—See also History of a Case of Pemphigus, with remarks, by William Gaitskell, Memoirs of the Medical Society of London, vol. iv. p. 1. - Dr Dickson, Observations on

pear to be ever contagious; and, according to Dr Bateman, all cases of this affection, which have been related by authors, are referable to other diseases in which they are accidental and symptomatic; or to the genus pompholyx of Dr Willan, which differs from the pemphigus described by Nosologists, in being unaccompanied by fever or local inflammation, and of which he has described three varieties: the P. benignus, diutinus, and solitarius. This disease principally affects persons of debilitated habits and of advanced age. The warm bath, with bark and cordials, appears to be the treatment which has been found most successful. It appears in one case to have yielded to mercury, after resisting many other remedies *.

733. Aphtha.—In his MS. lectures, Dr Cullen observes: "The aphthæ may be considered as exudations from inflammations; but they have connexion with the mucous excretories; by this singular circumstance, that they appear on the pudenda as well as in the mouth."—"In adults, I have said, I have never seen the disease idiopathic; and in infants I cannot consider it as febrile, and depending on a matter in the mass of the blood; but as a topical affection, from the first impression of the air on the mucous excretories, always within the first months."—"For the treatment of the idiopathic, I must refer to Van Swieten. My observations, as to the symptomatic, are, that I have known it in three cases; first, as attending hectics; secondly, as affecting old and fatal dysenteries; and, thirdly, as appearing

Pemphigus, Edin. Med. and Surg. Journal, vol. x. p. 451.—Dr Porter on Pemphigus, id. op. vol. xv. p. 517.—Gilibert, Monographie du Pemphigus, Paris, 1813.—Rayer, Traité des Maladies de la Peau, tom. i. p. 134, Paris, 1826.

[•] See Mr Sherwin's Case of Pompholyx Diutinus, Edin. Med. and Surg. Journal, vol. xxvii. p. 58.

at the end of several fevers. In the first two instances, it admits of no remedy; in the last, the remedy of Sydenham is the bark, confirmed by Van Swieten, and by what observations we have had. In the case of infants it is often spontaneously cured, and needs nothing but the mel rosarum. When it is more considerable, some detergents may be employed, but not early, as the aphthæ return. Alum was formerly the remedy, but borax is more effectual and safe "." Chalk or magnesia, with a little rhubarb, is a very useful remedy when they appear to be connected with a disordered state of the stomach and intestines. When aphthæ occur in children beyond the age of infancy, or in adults, they are generally considered symptomatic of other diseases, both acute and chronic. They are sometimes observed towards the end of several of the idiopathic exanthemata; and they are a frequent and usually a fatal symptom in the later stages of many chronic and organic diseases, particularly of the stomach and intestines. They occur sometimes, also, in connection with symptoms of low chronic inflammation of the mucous membrane of the stomach and bowels, without organic disease, answering nearly to Dr Cullen's description of the erythematic inflammation of the stomach. Such cases, 'though tedious, often end favourably; small bleedings and mild astringents appear to be useful +.

Dr Willan and Dr Bateman have given the name of aphtha anginosa to a species of sore throat, which is not

^{*} Cullen's Works, by Dr Thomson, vol. ii. p. 199.

[†] For a further account of this form of the disease, see Dr Latham on Cachexia Aphthosa, Medical Transactions, vol. v. p. 75, London, 1815; Dr Abercrombie on the Pathology of the Intestinal Canal, part iii. Edin. Med. and Surg. Journal, vol. xvi. p. 321; and Dr Cheyne on a fatal Disease of the Stomach, Dublin Hospital Reports, vol. iv. p. 253, 1827. The principal symptoms in these last cases were aphthæ, covering the pharynx and mouth, tenderness at the epigastrium, and vomiting of a viscid fluid of the colour of verdigris, and of all ingesta. It proved fatal to four adults in one family.

unfrequently observed during damp and cold autumnal seasons, especially in women and children. There appears to be no danger in this affection, nor does it call for active treatment. Dr Bateman states, that although there is no clear evidence of its propagation by contagion, it is frequently seen to attack several children in the same family about the same time, or in very quick succession *. More lately, however, an affection has been observed in different places, chiefly in children, and evidently contagious, which began nearly as the aphtha anginosa, with little or no fever, and without ulceration, but, in many cases, extended rapidly into the larynx, causing effusion of a whitish exudation, which produced croupy symptoms, and was very frequently fatal. This is the affection called diphthérite by M. Bretonneau of Tours +, who thought that he prevented the dangerous extension of the disease, when it had appeared on the tonsils, by the application of different escharotics, especially the hydrochloric acid, and more lately, by finely powdered alum, applied either in the form of a paste, or blown, through a tube, into the fauces and pharynx. In some cases of this kind at Tours, mercury used so as quickly to affect the system, appeared decidedly useful; and the same observation was made by Dr Abercrombie, when this affection was epidemic and very fatal in Edinburgh during the year 1826. He states, that "there is every reason to consider it as being primarily an affection of the mucous membrane of the fauces and œsophagus, which may go no farther; or may extend in one case to the stomach, in another to the larvnx. It is distinguished from the cynanche maligna by the absence of ulceration; and it is evidently an affection quite distinct

<sup>See Dr Willan's Reports on the Diseases of London, p. 111, London, 1801.
Bateman's Practical Synopsis, p. 258.</sup>

[†] Traité de la Diphthérite, Paris, 1826.—Also, Notice sur l'Emploi de l'Alun dans la Diphthérite, Archives Générales de Médecine, tom. xiii. 1827.

from the idiopathic inflammation of the membrane of the larynx, to which we commonly apply the name of croup. The distinction is of much practical importance; for when, either in this disease, or in cynanche maligna, the inflammation extends to the larynx, the cases do not bear any active treatment, and a very large proportion of them are hopeless *." The disease was often protracted for several weeks; and in some cases, which had previously been going on in a mild form, the fatal affection took place so late as the fourteenth day. It did not, in general, bear bleeding, and blisters were apt to become gangrenous. Calomel given freely, appeared to Dr Abercrombie to be the only remedy which had the power of arresting this affection.

734. Petechiæ.—Dr Cullen has not alluded to that form of petechiæ which has been described under the names of hæmorrhæa petechialis, petechiæ sine febre, land scurvy, &c. and which appears to be an idiopathic affection, often unconnected with fever, but accompanied by a peculiar state of the blood, and frequently by hæmorrhage, more or less profuse, from various parts of the body.

The term purpura has been appropriated by Dr Willan to "an efflorescence, consisting of small distinct purple specks and patches, attended with general debility, but not always with fever." These petechiæ and vibices appear to be caused by an extravasation of blood under the cuticle, proceeding from the cutaneous vessels. Dr Willan has described three varieties of this affection, the P. simplex, P. hæmorrhagica, and P. urticans. In the first of these, spots

^{*} Dr Abercrombie's Pathological and Practical Researches on Diseases of the Stomach, Intestinal Canal, &c. p. 55, Edinburgh, 1828.—See also, Observations on a Peculiar Modification of Sore Throat, which occasionally affects Children, by Dr Hamilton junior, who recommends the internal use of the acctate of lead, Edinburgh Journal of Medical Science, vol. ii. p. 325, 1826.

of various sizes, of a livid or purple colour, appear, particularly on the breast and inside of the arms and legs, generally attended with languor, debility, and sometimes with pain in the limbs. They are not attended by any peculiar sensation in the skin, and may be commonly distinguished from recent flea bites, as in these last there is a distinct central puncture, with a brighter red colour, which disappears on pressure. But sometimes, in the more advanced stages, it is very difficult to establish this distinction.

In the second species, or purpura hamorrhagica, the symptoms are more severe. It sometimes appears suddenly, without previous constitutional disorder, but more frequently it is preceded by great lassitude, faintness and pain of limbs; and is always accompanied by extreme debility and depression, and in some instances by frequent syncope. The pulse is commonly feeble, and sometimes there are febrile accessions; but in many cases, there is neither fever nor derangement of the functions. The petechiæ commonly appear first on the legs, and extend to the arms and trunk; they appear more rarely on the face and hands, but are sometimes observed in the mouth and fauces. In their progress they usually undergo a change in colour from bright red to purple; and when fading, and about to disappear, they become brown or yellow. The smaller petechiæ are commonly interspersed with vibices and ecchymoses of various sizes, resembling the effects of bruises; and similar appearances are often induced by very slight pressure. Hæmorrhages from the mouth, tongue, nostrils, throat, and sometimes from the urethra, the external ear, and the inner surface of the eyelids, and from various internal organs, as the lungs, stomach, intestines, uterus, kidneys, and bladder, take place frequently, but not uniformly, in this variety. These are sometimes so profuse as to prove quickly fatal. In other cases, the disease is complicated with the symptoms of internal inflammation, which constitute the chief danger.

In some instances, there is a constant oozing of blood from one part; in others, the hæmorrhage is less copious, and appears at stated or irregular intervals. After some time, it is commonly accompanied by sallowness of complexion, much emaciation, and œdema of the lower extremities which sometimes extends to other parts. The progress and duration of the disease are very uncertain. It sometimes terminates in a few days, and has been known to be protracted or recur repeatedly for years. On dissection, petechiæ have commonly been found upon various internal organs, particularly the heart and the stomach, as well as externally. The spleen and liver have been sometimes found diseased or enlarged. Dr Bateman has observed it at every period of life, and in both sexes; but most frequently in women, and in boys before the age of puberty, particularly in those who are of a delicate habit, who live in close and crowded situations, and on poor diet, or are employed in sedentary occupations, and subject to anxiety of mind, fatigue and watching. But the disease sometimes appears, and even proves fatal, in young persons living in the country with all the necessaries and comforts of life, and previously enjoying good health. This circumstance points out the essential distinction between this affection and scurvy, to which it was formerly referred; and many cases of purpura have been found to resist that change of diet, which is almost uniformly successful in scurvy. It sometimes occurs as a sequela of some other diseases, acute and chronic, especially when they have been attended or followed by much debility.

In the third variety, or P. urticans, the spots commence in the form of rounded and reddish elevations of the cuticle; otherwise the disease does not differ from the forms already

described.

The disease has proved fatal in different ways, -- sometimes by gradually increasing debility and exhaustion,- sometimes by accompanying inflammation,—and sometimes by rapid effusion of blood into the chest or brain *.

All cases of purpura were formerly treated indiscriminately by tonic medicines and generous diet, on the principle, that it is always a disease of debility. It is now, however, ascertained, that cases of this disease occur which require a very different, or even opposite treatment. In cases which occur in women or children who are much confined and debilitated, the use of tonics, wine, generous diet, and the mineral acids, along with exercise in the open air, will often be indicated. But when the disease comes on under opposite circumstances, in persons previously stout or plethoric, and in all cases when it is accompanied by febrile symptoms, or by cough, internal pains, and other symptoms indicating a local congestion, the antiphlogistic regimen and treatment should then be employed; and much advantage and relief may be sometimes obtained from blood-letting +. In other cases where the symptoms are less urgent, the free and repeated use of purgatives, such as jalap and calomel, has been found very successful; these have been followed by the best effects, even in some cases attended from the commencement with much debility and exhaustion ‡.

^{*} See Cases, by Dr Walsh, Edin. Med. and Surg. Journal, vol. ix.; Mr William Wood, Transactions of the Medico-Chirurgical Society of Edinburgh, vol. i.; and Dr Fairbairn, id. op. vol. ii.

[†] See Dr Parry's Observations on the Utility of Venesection in Purpura, Edin. Med. and Surg. Journal, vol. v. p. 7. The blood drawn in this disease generally coagulates slowly, appears more fluid than natural, and often no separation takes place between the scrum and crassamentum. At other times the separation has been complete, and the buffy coat has been well marked. See Cases of Purpura Hæmorrhagica, by Dr Combe, Dr Johnston, and Dr Duncan, id. op. vol. xvii. p. 85; vol. xviii. pp. 402, 405; also Case of P. urticans, id. op. vol. xii. p. 248; and Dr Stoker on Dropsy, Purpura, &c. Dublin, 1823.

[‡] See Dr Harty on the Use of Purgatives in Purpura, Edin. Med. and Surg. Journal, vol. ix. p. 186.—Heberden's Commentaries, 2d edit. p. 395.

Melanosis .- From the analogy which it bears to purpura, it may not be improper to notice, in this place, that peculiar affection pointed out by M. Dupuytren, but first accurately described, under the name of Mélanose, by M. Laennec *, who considered it to be a tissu accidentel, without analogy in the healthy state. More recent investigations, particularly those of M. Breschet and M. Andral, lead to the conclusion, that it is the result of the simple deposition of an inorganic colouring matter, in the solid or liquid form, on the surface, or in the parenchyma of various organs. In its chemical composition, the substance of melanosis only differs from that of the crassamentum of the blood, in containing a peculiar very insoluble principle, resembling charcoal or chinaink, (and stated by Thenard to be carbon,) to which it owes its colour, and which is more or less analogous to the colouring matter of the blood. Hence M. Breschet concludes, that the matter of melanosis is composed of effused blood which has undergone certain alterations +. This opinion seems to be confirmed by the observations of MM. Trousseau and Leblanc, who state, "that melanosis, as it occurs in horses, when examined in its earliest stages, is evidently caused by a deposition of the red globules under the form of petechiæ, which, in the midst of other spots evidently melanotic, they have observed losing their purple colour, and passing by gradations into the characteristic black colour of this affection; and that, in portions of large melanotic tumours, they have recognised the red colour of the blood ‡." When of some standing, however, these tumours

^{*} Bulletins de la Société de l'Ecole de Médecine, Paris, 1806.

[†] Considérations sur l'Altération Organique appellée Mélanose, par M. Breschet, Journal de Physiologie Experimentale, par F. Magendie, tom. i. p. 354.

[†] Mémoire sur la Mélanose, Archives Générales de Médecine, tome xvii. Juin, 1828.

are certainly somewhat different from the crassamentum of the blood *.

Melanosis occurs under different forms: In solid masses or tumours of various forms and sizes, sometimes, but not always encysted; in the state of infiltration in various tissues and organs; in the form of layers upon the surface of membranes; and in the form of a liquid contained in a cyst, or secreted in the substance or on the surface of organs.

In some one of these forms it has been met with in almost every tissue of the body. It occurs most frequently in the lungs, in the subcutaneous and intermuscular cellular tissue, and in that of the thorax and abdomen. More rarely it has been observed in the cancellated structure of the bones, in the muscular substance of the heart, and in the liver, the spleen, the kidneys and other abdominal organs +. In general, it may be stated, that melanotic tumours are not surrounded by any marks of increased action or vascularity in the dead body; that no vessels can be traced, even by minute injection, into their substance, which is quite homogeneous and unorganized; that the texture of the tissues and organs, in which these depositions take place, commonly remains unaltered, even in their immediate vicinity; that they may exist to a great extent without materially affecting the health, or giving rise to any symptoms local or general; and that when they appear to cause pain or other symptoms, as when developed in the orbit, this is to be attributed, in a great measure, to the mechanical pressure and irritation produced by the presence of these tumours acting as a foreign body upon the organ in which they are

[·] Dictionnaire de Médecine, tome xiv. Article Mélanose, par Andral.

[†] See a Paper on Melanosis by the late Dr Cullen and Mr Carswell, in the Transactions of the Medico-Chirurgical Society of Edinburgh, vol. i. p. 264. —Case of Melanosis, with General Observations, &c. by Thomas Fawdington, London, 1826. — Review of same work, Edin. Med. and Surg. Journal, vol. xxvii. p. 150; and Andral, op. cit.

deposited. But, unfortunately, we have few accurate statements of the early symptoms in these cases. Some patients, in whom the melanosis has been found after death, had suffered, for some time, from pains similar to rheumatism, in the affected parts.

This affection is comparatively rare in man, while, on the other hand, it is not uncommon among the lower animals, and particularly in horses, on the Continent at least. a curious fact, that white or grey horses are more subject to melanosis than those of any other colour; and MM. Trousseau and Leblanc state, that there are few horses of this colour, in which melanosis in some of its forms does not exist *. In the human species, it is most frequently met with in advanced life, or in debilitated constitutions, and, unless when complicated with other diseases, is very chronic, and only proves fatal by the debility which it causes or increases. As when once deposited, the matter of melanosis does not appear to be again absorbed, the treatment in this affection, when it can be ascertained during life, can be only palliative, and therefore need not be more particularly alluded to in this place.

Roseola.—This efflorescence, to which, as being chiefly symptomatic, and occurring in the course of various febrile complaints, Dr Cullen has not alluded, has been placed as a distinct disease, in this order, by Dr Willan. It is unimportant in a practical view; but as it has sometimes been confounded with several of the idiopathic exanthemata, it is proper that its general characters should be known. It consists, according to Dr Bateman, in a rose coloured efflorescence, variously figured, without wheals, or papulæ, and not contagious. It occurs commonly in summer, in females of irritable consti-

tutions, and is attributed to sudden alternations of heat and cold, especially to drinking cold liquors after exercise; and it is sometimes connected with the bowel complaints of that season. It sometimes is only partial, and extends in slightly elevated patches, with considerable itching. It is irregular in its duration, and sometimes appears and disappears several times without apparent cause, or from sudden emotions or impressions. Headach, faintness and disorder of the stomach usually follow its recession, and are relieved on its re-appearance. It occurs also in children chiefly during teething or other febrile complaints; and when generally diffused has been frequently mistaken for measles or scarlet fever. In a few cases it becomes chronic, and the colour is then generally brighter at night, with some heat and itching in the skin. The warm bath, the mineral acids, with light diet and occasional laxatives, and sometimes seabathing, are the remedies most commonly employed in roseola *.

An account has been lately published of a new species of eruptive disease, evidently contagious, which occurred in the Islands of St Thomas and Santa Cruz, in the autumn and winter of 1827–28. The chief peculiarities were an attack of fever, with severe pains of limbs, quickly abating, but followed, after a few days, by an efflorescence, resembling measles or scarlatina, lasting for about forty-eight hours, with renewal of the fever, and this followed by severe chronic articular rheumatism. The febrile attacks being of short duration, the disease was hardly ever fatal: the different antiphlogistic remedies were used, according to the urgency of

[•] For a more particular account of this affection, see Bateman's Practical Synopsis, p. 96.

the symptoms, with good effect during the febrile paroxysms; and the ordinary practice was employed for the succeeding chronic rheumatism *.

830-36. Hamoptysis. - According to M. Laennec, slight or moderate hæmoptysis proceeds generally from a simple transudation of blood through the mucous membrane of the bronchiæ; while profuse hæmoptysis, on the other hand, has its source in the cellular tissue and parenchyma of the lungs, and constitutes that affection, which he has named Apoplexie pulmonaire, on account of its resemblance to the exudation or effusion of blood in the brain, which takes place in sanguineous apoplexy. The discharge of blood in this more violent form of hæmoptysis is generally very abundant, and recurs at intervals with cough and irritation in the larynx, oppression, anxiety, flushing, or extreme paleness of the face, with coldness of the extremities, and sometimes with acute pain in the chest. When the hæmoptysis is very profuse, it is generally accompanied by a slight cough, and a movement of the diaphragm, similar to that which takes place in the act of vomiting, so as sometimes to give rise to the impression, that the blood has been brought up by vomiting. M. Laennec states, that he has reason to believe, that hæmatemesis, in some instances, is combined with hæmoptysis, as he had found blood in the stomach in some cases of the last affection, in which there had been retching; but that such cases are rare, as an attack of severe hæmoptysis seldom proves immediately fatal. In fatal cases, it seems likely, that any blood found in the stomach may have been swallowed. The blood expectorated is sometimes flo-

^{*} See Dr Stedman on an Anomalous Disease which raged in St Thomas and Santa Cruz, Edin. Med. and Surg. Journal, vol. xxx. p. 227. He has given the name of Eruptive Articular or Rheumatic Fever, to this peculiar affection.

rid and mixed with air, mucus, and saliva; at other times, it is dark and coagulated. There is seldom well-marked fever, although the pulse is generally quick, vibratory, and full; it is sometimes soft and feeble.

The peculiar organic alteration in the substance of some portion of the lungs, which has been seen after violent hæmoptysis, and is described as apoplexy of the lungs, consists in a portion of lung becoming equally condensed or indurated, but with appearances otherwise different from those of hepatization from pneumonia. It is always partial, commonly of small extent, and almost always exactly circumscribed; the pulmonary substance surrounding it being generally healthy and crepitating. These indurated portions are commonly situated towards the centre of the inferior lobe, or towards the root of the lungs. They resemble, in colour, coagulated venous blood, and are quite homogeneous in appearance; the coats of the blood-vessels and bronchiæ of the part lose their natural white colour, and acquire the same deep tint, apparently from imbibition of blood. When cut into, they present a granulated appearance, and some dark-coloured grumous blood can be removed by the scalpel from the surface of the incisions; but the pulmonary tissue remains harder and less moist than in a portion of hepatized lung. M. Laennec concludes, that this morbid alteration is the result of an effusion of blood into the air-cells, where it coagulates, and gives rise to the granulated appearance of the surface of the incisions. He is of opinion, that this engorgement pulmonaire or hémoptoique, sometimes terminates favourably by resolution, as many persons have recovered perfectly, after having suffered profuse and repeated hæmoptysis. It has been sometimes observed on dissection, in cases where no hæmoptysis existed during life *.

^{*} Andral, Clinique Medicale, tom. iii. pp. 166, 173.

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The causes of this variety are in general the same as those which induce the slighter cases of hæmoptysis, which have been supposed to proceed only from the mucous membrane. It occurs, however, more frequently in connection with diseased heart, than with tubercular lungs*. The general plan of treatment does not differ from that mentioned in the text, except in this respect, that, as the danger from profuse hæmorrhage and suffocation is more imminent, blood-letting should be employed more freely, and may, especially in the commencement of the attack, be even continued ad deliquium; as the quantity of blood lost in this way is by no means so great, as that which is often expectorated in a short time in hæmoptysis, and it is attended with much less risk †.

shewn, that the expectoration, at first mucous, and afterwards puriform, which is so important a feature in this disease, proceeds, in a great measure, from the mucous membrane of the bronchiæ; and although true pus is in general less viscid, more opaque, and more fetid than the mucous secretion from the bronchiæ, yet the expectoration in simple chronic bronchitis, without tubercles, frequently assumes a perfectly puriform appearance and consistence. No pathognomonic character can therefore be drawn solely from the appearance of the matter expectorated in consumption. Tubercular matter, in its solid form, is rarely observed in phthisical expectoration; and even in its softened state, when it is so intimately blended with the mucous secreted by the bronchiæ as not to be recognised, there is reason to

† For further details on this subject, see Laennec, Traité de l'Auscultation Médiate, 2d edit. tom. i. p. 378; and Andral, Op. cit. tom. iii. p. 164.

[•] Burns on Diseases of the Heart, p. 53.—Laennec, 2d edit. tom. i. p. 389.

believe, that it enters but in very small proportion into the composition of the sputa, especially if the expectoration be copious. M. Andral, after a minute and attentive examination of the characters furnished by the expectoration in phthisis, states, that "it is easy to conceive how uncertain they must be, when we reflect, 1st, That the whole of the sputa in the commencement of this disease, and the greater part in its subsequent periods, are only the produce of the bronchial secretion; and, 2dly, That the mucous membrane of the bronchiæ can, moreover, secrete a fluid, which, in certain cases, resembles exceedingly in appearance that formed in a tubercular excavation." In conclusion, he states, as the result of his observations, "that the inspection of the sputa alone is not sufficient to authorise us either to affirm, or to deny the existence of phthisis pulmonalis. Therefore, when Cullen defined this disease, 'an expectoration of pus or purulent matter from the lungs, attended with hectic fever,' he has given a definition which appears to us incomplete and inexact, since he has taken it from a symptom which does not always exist, and which, when it does exist, is not sufficient to characterise the disease *."

863-876. Tubercles are certainly the true pathological cause of phthisis in an immense majority of instances, although a few cases occur of inflamed and hepatized lungs becoming ulcerated, with or without previous suppuration, and presenting all or many of the symptoms of phthisis, where no tubercles can be observed †. The other causes mentioned in the text most generally lead on to phthisis

^{*} Andral, Clinique Médicale, tome iii. p. 118-162.—See also Laennec, Traité de l'Auscultation Médiate, 2d edit. tome i. p. 549-686.

[†] Bayle, Recherches sur la Phthisie Pulmonaire, Paris, 1810.—Dr Abercrombie on the Pathology of Consumptive Diseases, part ii. p. 21, Edin. Med. and Surg. Journal, vol. xviii.

only by co-existing with, or giving rise to, the formation of tubercles. In most phthisical cases, tubercles are deposited in successive crops or eruptions, and these almost always take place first in the upper lobes. When they are deposited in very large numbers, and simultaneously over the whole or a great part of the lungs, as in that form of the disease described by Bayle under the name of *Phthisie granuleuse*, or in that of the *Tubercules miliares* of Laennec, tubercles prove fatal often within a few weeks, without going on to suppuration; sometimes, without causing emaciation, frequently with little or no expectoration, and with symptoms resembling those of chronic pneumonia, rather than the ordinary form of phthisis *.

In the more ordinary cases, when the tubercles are less numerous, and do not so much impede the functions of the lungs, they gradually undergo certain changes, which have been accurately described by M. Laennec and others. They coalesce in clusters,—become yellow and opaque from being grey and translucent, (or miliary),—then soften, more or less completely,—generally first in their centres,—make their way into the bronchiæ,—cause induration, disorganization, or ulceration of the surrounding cellular texture,—and form excavations, sometimes of great extent, which, agreeably to what has been stated above, are generally found in the upper lobes, while tubercles more recently deposited, and not yet softened, or in different stages of that process, extend over the lungs.

It appears from paragraph 867, that Dr Cullen was not aware of the fact, that abscess in the lungs from pneumonia is comparatively a very rare occurrence, and that in the great majority of cases in which abscesses or *vomicæ* from

^{*} See Bayle, Op. cit. chapitre ix.—Andral, Op. cit. tom. iii. pp. 4. 91. 373; and Dr Alison on the Pathology of Scrofulous Diseases, Trans. of the Medico-Chirurgical Society of Edinburgh, vol. i.; and on the Origin of Tubercles, Id. Op. vol. iii, part 1.

this cause have been said to discharge their contents into the bronchiæ, and in this way produce phthisis, or into the cavity of the pleura, and produce empyema, the symptoms have in reality proceeded from the formation of a tubercular excavation, which forms, as it extends, a fistulous communication, either with the bronchiæ or the cavity of the pleura. Empyema is sometimes produced in this way, the principal source of the purulent effusion, however, being, not the matter which escapes from the cavity of the lung, but that which is formed on the pleura, as soon as the communication is established. The case of simple pleuritis attended with effusion, sometimes of limpid serum, and more frequently of a sero-purulent fluid, along with coagulable lymph, as described in the Appendix on Pneumonia and Pleuritis, is perhaps more frequent, and affords a better chance of success from the operation.

The assistance afforded by the examination of the chest, by the dilatation of the affected side, by the stethoscope, and by percussion, in forming the diagnosis in this last form of empyema, has been already mentioned *. When the affection is caused or accompanied by a fistulous communication with the bronchiæ, and air as well as pus therefore exists in the cavity of the pleura, certain other symptoms are commonly observed, which are little liable to fallacy, and to which it is proper here to allude. The term tintement metallique has been applied by M. Laennec to a sound heard on applying the ear or the stethoscope to the chest, similar to that returned by a vessel of metal or porcelain, when gently struck by a pin, or into which a bit of small gravel is allowed to fall. It is heard faintly when the patient breathes, and more distinctly when he speaks or coughs. It always depends upon the vibrations communicated by respiration, coughing, or the voice, to the air in contact

^{*} See Appendix on Pneumonia and Plcuritis, p. 425-31.

with the surface of a fluid in a cavity; consequently, it can only take place, according to M. Laennec, in two cases: either the case we are now considering of purulent effusion in the cavity of the chest, with an ulcerated opening from the cells of the lungs; or that in which an extensive tubercular excavation, likewise communicating with the bronchiæ, is only partly filled with very fluid matter. This peculiar and very characteristic phenomenon is in general distinct in proportion to the quantity of air contained in the cavity of the pleura; and when the quantity of fluid effused is small, while the space occupied by the air is considerable, it is sometimes converted into another equally distinct sound, to which M. Laennec has given the name of bourdonnement or résonnance amphorique, similar to that produced by blowing air into a hollow empty vessel. The tintement métallique, which occurs in a tubercular excavation, may be generally distinguished from that which occurs in empyema combined with pneumothorax, by its being confined to that part of the lungs in which the first of these affections commonly occurs, and by the concomitant symptoms. When combined with dilatation of the affected side, and absence of the sound of respiration, while the sound on percussion in the most depending parts is dull, and in the upper is tympanitic, it may be considered as pathognomonic of empyema combined with pneumothorax *.

When Dr Cullen introduced into his definition of empyema, "Sæpe cum sensu liquoris in pectore fluctuantis et signis "hydrothoracis," he probably alluded to the fluctuation, sometimes heard upon the movement or succussion of the thorax, which, from having been known, and practised in the earliest periods of the history of medicine, has been named fluctuatio Hippocratica. But he does not appear to

^{*} For further details on this subject, see Laennec, Op. cit. tom. i. p. 108; and Dr Duncan on Empyema and Pneumothorax, Edin. Med. and Surg. Journal, vol. xxviii.

have been aware that this symptom can only exist when air, as well as effused liquid, is present in the cavity of the pleura; and as this complication is comparatively rare in pleuritic effusion or *empyema*, the sound of fluctuation within the chest can occur but seldom, and only in the same cases as the *tintement métallique*. The only important source of fallacy to which it is liable, is the presence of liquid in some quantity in the stomach, partly distended by flatus; and this can be easily obviated.

It may be proper to notice in this place the indications furnished by percussion, and particularly by the stethoscope, in phthisis pulmonalis. Tubercles, in their first stage and miliary form, may be developed to a great extent over the whole lungs, and their existence may not be detected by this mode of examination, especially if the pulmonary substance in the interstices remains permeable to air; but in the more advanced stages, when they coalesce, when induration of the pulmonary texture takes place, and, above all, when ulcerated cavities are formed, various phenomena present themselves, some of which, when well marked, are quite pathognomonic. Of these the most important and most striking, is that peculiar resonance of the voice, as heard through the stethoscope applied to the chest, to which M. Laennec has given the name of pectoriloquie. When perfect this resonance is very characteristic, and conveys the impression that the voice of the patient is directed rather through the stethoscope, than by the mouth, to the ear of the listener. The most perfect comparison of true pectoriloquism is to the sound of the voice, as heard through the stethoscope applied to the larynx or trachea. It depends upon the vibrations communicated by the voice to the air contained in an excavation in the substance of the lungs, and in communication with the bronchiæ, and is more distinct in proportion as the cavity is situated nearer to the surface, and the voice is stronger. It is confined almost

entirely to the case of excavations caused by the softening of tubercular matter; and these, as has been stated above, occurring most commonly in the upper lobes, and, according to M. Laennec, in the right lung, it is most frequently found on applying the stethoscope under the clavicle, in the axilla, or in the supra-spinal fossa of the scapula, and is generally well circumscribed. But it is sometimes doubtful, and frequently imperfect, and may, by itself, be mistaken for the natural resonance of the voice in certain circumstances, or for that resonance which takes place when a portion of lung has become indurated by an accumulation of tubercles, or hepatized from pneumonia, and thereby been rendered a better conductor of sound. To this last M. Laennec has given the name of Bronchophonie. There are, however, three other phenomena, namely, the cavernous respiration, cough, and râle, one or more of which always accompanies true pectoriloquism; and even when this last is not heard, or is imperfect, the existence of an excavation may be determined by the combination of the cavernous respiration with the cavernous râle and cough, when it contains softened tubercular matter, or with the last alone, when it is empty. These sounds are quite circumscribed, and well characterized. The cavernous respiration conveys the impression of air entering into a cavity by a small aperture, without the sound of the unfolding and dilatation of the air-cells, which is heard during natural respiration. The râle caverneux, is the peculiar gurgling sound caused by the movement communicated to the purulent or softened tubercular matter contained in an excavation, by respiration, speaking, and particularly by coughing. This phenomenon is seldom awanting when the excavation is of some size, and contains fluid matter, and it is then quite pathognomonic; but when the cavity is small, or empty, it may not exist, while all the other signs are present. It is frequently observed to disappear immediately after copious expectoration, and, after an interval, to reappear. In healthy lungs, the action of coughing does not give rise to any peculiar sound in the thorax; but when an excavation exists, it produces the sensation of air entering forcibly into a canal or cavity; it may be compared to the sound of coughing as heard through the larynx, and is sometimes so loud as to produce a painful impression on the ear. When the excavation is empty, the cavernous cough is quite characteristic; and when the excavation is partly filled with fluid matter, it gives rise to the râle caverneux.

When tubercles are deposited in great numbers, the natural sound on percussion is generally diminished; and when an excavation is formed, it sometimes becomes tympanitic; but much reliance cannot be placed on the indications given by percussion in phthisis, as they are by no means constant or decisive.

With regard to the use of the stethoscope in phthisis, it may be said, in general, that it cannot indicate the existence of tubercles at the period of their deposition, or in their miliary form, when such knowledge might, perhaps, be practically important; but that it enables us, in many cases, to ascertain the existence, the extent, and the progress of tubercular ulceration and disorganization, which cannot be determined in any other way; and that, in many cases, which are often, from the nature of the symptoms, considered and treated as confirmed phthisis, it enables us to say, that tubercles do not exist in great numbers; or, at least, have not caused induration, disorganization, or ulceration of the pulmonary substance to any appreciable extent.

The recent progress of pathological anatomy has shewn, that the opinion formerly entertained by Dr Cullen and others, and more lately advanced by M. Broussais, that tubercles in the lungs are indurated lymphatic glands, is in all probability erroneous, although these glands are peculiarly apt to become tubercular in all parts of the body. It is rare

to find the deposition of tubercles confined to the lungs in phthisis; and it has been said that, when they are observed in any other part, they always exist in the lungs at the same time. They are very frequently found in the coats of the intestines, where they appear to be connected with the ulcerations and colliquative diarrhæa, which occur in the advanced stages of the disease. M. Laennec was, indeed, of opinion, that the colliquative diarrhæa always depended on a previous deposition of tubercles; but it certainly may be sometimes distinctly observed where neither tubercles nor ulcerations are found in the intestines.

There is perhaps no organ in the body which is not liable to the deposition of tubercles, or in which they may not be occasionally found to exist along with phthisis pulmonalis. The following list of organs in which he had met with tubercles, and nearly in the order of their frequency, is given by M. Laennec: The bronchial, mediastinal, cervical, and mesenteric glands, the lymphatic glands of other parts of the body, the liver, the prostate, the surface of the peritonæum, and the pleura, the epididymis, the vas deferens, the testicles, the spleen, the heart, the uterus, the brain and cerebellum, the substance of the cranium, the bodies of the vertebræ, or the intervertebral cartilages and ligaments, the substance of the ribs, and all the other bones, and, lastly, certain tumours, similar to those which are commonly called scirrhous or cancerous. They are more rarely developed in the muscles of voluntary motion than in any other part *.

Some discussion has taken place in regard to the affections of the liver which occur in the course of phthisis. The most frequent alteration observed in this organ in France, is the fatty degeneration pointed out by Bayle †, and which M. Louis found in forty out of a hundred and twenty cases

^{*} Laennec, Op. cit. 2d edit. tom. i. p. 555.

[†] Bayle, Op. cit. p. 62.

of phthisis, or in the proportion of one-third *. It appears to be more frequent among females than males. Organic alteration of the liver, though not precisely of the same kind, is common in the phthisis of this country. Dr Wilson Philip †, and some others, have supposed that the affection of the liver might be the primary disease, giving rise in its progress to that of the lungs. But from the smaller amount of alteration which it generally presents, there is reason to believe that it is more frequently consecutive upon the deposition of tubercles in the lungs.

The most important point, connected with tubercles, is the cause of their formation. This is still matter of opinion and controversy, and it would be therefore improper to enter upon it at any length in this place. It may, however, be stated generally, that there exist at present two prevailing opinions upon this subject. The first of these, is that adopted by MM. Bayle, Laennec, and others, in France, who consider tubercles to be a tissu accidentel, or morbid adventitious deposition, without analogy in the healthy body, independent of inflammation, although apt to excite it, and dependent only on a peculiar diathesis. Dr Baron, in this country, entertains similar views as to their being unconnected with inflammation, but has advanced the hypothesis, which is peculiar to himself, that tubercles, in their commencement, are vesicles or hydatids, with fluid contents t. This view, however, is not consistent with the results obtained from the accurate observation of tubercles in their earliest stages, and in different countries, and does not appear to have met with many advocates.

^{*} Recherches sur la Phthisie, p. 115.

[†] Wilson Philip on Dyspeptic Phthisis, Medico-Chirurgical Transactions, vol. vii. p. 499.

[‡] An Inquiry, illustrating the nature of tuberculated accretions, &c. London, 1819; and Illustrations of the Inquiry respecting Tuberculous Diseases, London, 1822.

The second opinion as to the cause of their formation, which is the one, I believe, most generally received in this country, and which has been maintained in France, first by M. Broussais, perhaps in too unqualified terms *, and more lately by MM. Andral †, Cruveilhier ‡, and Lombard §, is, that while the predisposition to their formation is given by a peculiar diathesis, the immediate cause of their deposition is very often an inflammatory attack, modified in its nature by the existing and predisposing state of the constitution ||.

A predisposition to phthisis is certainly induced in many cases by debilitating causes. Of these, the most powerful, perhaps, are a residence in large and crowded cities, and mental depression. The two following remarkable facts may be quoted from the work of M. Laennec in corroboration of this statement. He ascertained, that, upon the southern coast of Brittany, the mortality from phthisis is not greater than about one-fortieth of the whole, while in Paris, and in the large central towns of France, it varies only from one in four to one in five. It may be doubtful, how far this difference is to be ascribed to residence on the sea coast, and how far to other concomitant circumstances; but a similar relative proportion, in the mortality from this and other forms of scrofulous diseases between the inhabitants of the country, and those of large towns, has been found to exist in this and other countries ¶. As a proof of the influence of the depressing passions in the production or development

[·] Histoire des Phlegmasies ou Inflammations Chroniques, vol. ii.

[†] Clinique Médicale, tom. iii. chapitre premier.

[†] Nouvelle Bibliothèque Médicale, Septembre 1826.

[§] Essai sur les Tubercles, Paris, 1827.

For further details and various facts in favour of this opinion, see Dr Alison on the Pathology of Scrofulous Diseases, Transactions of the Medico-Chirurgical Society of Edinburgh, vol. i.; and on the Origin of Tubercles, Id. op. vol. iii. part 1.

[¶] See Dr Alison's Paper, Op. cit.

of phthisis, M. Laennec states, that in a religious community in Paris, remarkable for the rigid austerity of their views and mode of life, during a period of ten years that he acted as physician to the establishment, the inhabitants had been twice or thrice renewed, from the successive deaths or removal, in consequence of attacks of phthisis, of all the members; with the exception of a few, who had, from their situation in the establishment, some habitual occupation *.

The mortality from phthisis is stated to be about one-sixth, or less, of the inhabitants of Vienna and Philadelphia, and one-fifth of those in Berlin and New York. In Great Britain, it has been variously estimated. It is stated by Dr Young to be about one-fourth of the whole †; and this may be considered as an approximation to the truth. Dr Woollcombe, who is of opinion that it is on the increase in this country, estimates the proportion of consumptive to the general mortality, as rather less than one to four; and stating it, to avoid exaggeration, as one to five, he has calculated, that not less than 55,000 persons fall victims to this disease annually in Great Britain ‡.

884. The fact to which Dr Cullen has alluded in this paragraph, has been fully confirmed by later observations; and although he had not met, in this country, with many cases of phthisis which could be referred to the inhalation of dust, it has been ascertained, that those persons who, by their employments, are much exposed to the inhalation of small irritating particles, such as millers, coal-heavers, flax and feather dressers, needle-grinders, and, above all, stone-cutters, in this country, are peculiarly liable to that modi-

^{*} Laennec, Op. cit. tom. i. pp. 643, 647.

[†] See Young on Consumptive Diseases, p. 41; and Southey on Pulmonary Consumption, p. 52.

[†] Woollcombe on the Frequency and Fatality of different Diseases, &c. p. 72, London, 1808.

vanced life. There is reason to believe, that few stone-cutters in Edinburgh reach the age of fifty without presenting some phthisical symptoms. These facts appear to corroborate the opinion, already mentioned, of the frequent inflammatory origin of tubercles; and additional evidence in favour of this opinion is drawn from the fact, that appearances not to be distinguished from tubercles can be produced in animals, previously healthy, merely by a particular kind of mechanical irritation, as by the injection of metallic mercury into a blood-vessel, or into the trachea and bronchiæ*.

887-8. Although phthisis is perhaps most frequent among the upper classes of society in the earlier periods of life, as stated by Dr Cullen, yet among the lower classes in this country it is pretty equally distributed over the different ages, and is scarcely less common beyond the age of fifty than before it †. In the phthisis of advanced life, the appearance of tubercles is often less distinct than in youth; a larger proportion of the indurated and ulcerating lungs being in a state of hepatization; and, in some instances, the tubercles observed are nearly black and cartilaginous, or of a darker colour and more fleshy consistence than in the more common kind of morbid deposition, which we have described under this name.

^{*} This experiment appears to have been first performed, and its effects described, by Dr Allen Moulin, in 1690; Philosophical Transactions abridged, vol. iii. p. 255, London, 1705; On the Injection of Mercury into the Blood, and its Effects upon the Lungs.—It was also performed by Dr Saunders, who mentions, that the tubercles produced in this way, when cut into, contained each a globule of mercury, forming a kind of nucleus to the circumscribed inflammation; A Treatise on the Liver, p. 211, London, 1795.—Similar experiments and appearances have been lately detailed by M. Cruveilhier, Nouvelle Bibliothèque Médicale, 1826; and by Dr J. P. Kay, in Dr Alison's Paper on the Origin of Tubercles, Edinburgh Medico-Chirurgical Transactions, vol. iii. part 1.

[†] See Dr Alison's Paper on the Pathology of Scrofulous Diseases, Op. cit.

897.—From the semicartilaginous membranes not unfrequently found lining the parietes of tubercular excavations, after their contents have been evacuated into the bronchiæ, and from the apparent cicatrices sometimes observed in those parts of the lungs where these excavations most commonly occur, it has been concluded, upon sufficient grounds, that they may be healed, and their cavities obliterated. But, generally, the disorganization and tubercular disposition in other parts of the lungs is so extensive, that the patient dies exhausted before the process of cicatrization even of a single cavity can be completed *.

899-924.—It is hardly to be expected that any specific remedy to cause absorption of tubercles already deposited, or to alter their subsequent course, will ever be discovered. The most important practical point with reference to phthisis is the study of the causes of tubercular deposition. So far as the facts connected with this disease are known, there are two great objects to which attention ought specially to be directed. The *first* is, to strengthen the constitution, and lessen the scrofulous tendency, before any marked disease exists. There is good evidence that much may be done with this view by attention to the mode of life, and by tonic regimen and remedies. The second object is to prevent, by avoiding the exciting causes, and to check early, by the usual antiphlogistic measures, (when it shows itself,) inflammation in scrofulous habits.

The following modern works upon phthisis pulmonalis may be consulted in addition to those already mentioned:

STARK, (WILLIAM,) Works of, by Dr Carmichael Smyth, London, 1788.

^{*} For complete details upon the cicatrization of ulcerated excavations in the lungs, see Laennec, Op. cit. tom. i. p. 580.—Dr Abercrombie on the Pathology of Consumptive Diseases, part ii. Edin. Med. and Surg. Journal, vol. xviii.—And Andral, Op. cit. tom. iii. p. 382.

BEDDOES on Consumption, Bristol, 1799.

BAILLIE'S Morbid Anatomy, 3d edit., p. 67, London, 1807.

Sanders on Pulmonary Consumption, Edinburgh, 1808.

PORTAL, Observations sur la Nature et le Traitement de la Phthisic . Pulmonaire, Paris, 1809.

Wells, On Pulmonary Consumption and Intermittent Fever, Transof a Society for the Improvement of Med. and Chir. Knowledge, vol. iii. p. 471.

DUNCAN, On Pulmonary Consumption, Edinburgh, 1813.

SOUTHEY, (H. H.) On Pulmonary Consumption, London, 1815.

Young, On Consumptive Diseases, London, 1815.

Armstrong, On Scarlet Fever, Measles, and Consumption, 2d edit., London, 1818.

ABERCROMBIE, On the Nature and Origin of Tubercular Diseases, Medico-Chirurgical Transactions of Edinburgh, vol. i. p. 682.

MASON GOOD'S Study of Medicine, 2d edit., vol. iii. London, 1825. Louis, Recherches Anatomico-Pathologiques sur la Phthisie, Paris, 1825.

Medical Cases by Dr Graves and Dr Stokes, and Remarks on Mediate Auscultation, by Dr. Stack, Dublin Hospital Reports, vol. iv. 1827.

BRIGHT, Reports of Medical Cases, &c. p. 148, London, 1827.

WILLIAMS, (CHARLES J. B.) A Rational Exposition of the Physical Signs of the Diseases of the Lungs and Pleura, London, 1828.

947-994. Hæmorrhois, Menorrhagia, and Leucorrhæa.— In his MS. lectures, Dr Cullen states, that the only astringent which has any pretensions to efficacy in menorrhagia is alum, and he thinks that the acetate of lead employed by many in hæmorrhois, both as an astringent and a sedative, is attended with bad consequences, and at length rather increases the relaxation. He therefore confined himself to the use of alum, joined to some of the vegetable astringents in decoction *. Several of the metallic astringents, particu-

^{*} Cullen's Works by Dr Thomson, vol. ii. pp. 279, 286.

larly the sulphates of zinc and copper, are now very gene--rally given internally in menorrhagia and leucorrhœa, and apparently with good effect: they are also employed in the form of injection into the womb, often with powerful effect; but this practice requires caution, if there are any inflammatory symptoms, or reason to apprehend organic disease. The acetate of lead is frequently employed internally in these and other diseases, commonly in combination with opium; and when given in small doses, continued only for a few days at a time, it appears to act as a decided astringent, without any bad effects. In cases where it may be proper to give bark, the sulphates of zinc and copper are advantageously combined with the sulphate of quinine. An ointment containing finely powdered gall-nuts, as stated by Dr Cullen in his Materia Medica, is frequently employed with much relief in hæmorrhoidal affections. In other respects, the treatment of these diseases does not at present differ from that laid down in the text.

1014. Dr Cullen mentions in his MS. lectures, that, in cases of dysmenorrhœa, with pain and marks of distention in the neighbouring parts, he constantly had recourse to opium, and hardly ever without success. He conceives that opium, instead of being apt to suppress the menstrual flux, or any other hæmorrhage, has in many cases a tendency to increase them. Accordingly, he frequently obviated those pains that accompany the hæmorrhagic effort, and not only produced more immediately the menstrual flux, but in larger quantity than usually attends those cases of dysmenorrhœa *.

1027-32. Hamatemesis.—In cases of this affection not connected with the suppression of an accustomed hæmor-

^{*} Op. cit. vol. ii. p. 299.

rhage, as the menstrual flux and hæmorrhoids, disease of the liver or spleen, or ulceration of the stomach, may always be suspected. Hæmatemesis and melæna, probably depending, as mentioned in the text, upon obstructed venous circulation, are frequent symptoms in chronic diseases of the liver and spleen, seldom occurring till these diseases are far advanced, and therefore frequently fatal; in ulceration of the stomach, the blood appears to proceed from an eroded vessel.

1033. Hæmaturia.—There is one form of hæmaturia, to which Dr Cullen has not alluded, and which perhaps may be considered as idiopathic. It proceeds from a disease of the mucous membrane of the bladder, which becomes thickened, assumes a fungous appearance, and goes on to ulceration. In such cases the disease has been kept under for a long time by the antiphlogistic regimen, absolute rest, and the use of astringents.

1044. In mentioning the circumstances by which the presence of blood in the urine may be known, Dr Cullen says, that there is no state of the urine without blood in which it is coagulable by a heat equal to that of boiling water. Dr Wells, Dr Blackall, and others, however, have shewn, that the urine in dropsy often contains much albumen, which coagulates on the application of heat *; and, more lately, Dr Bright has shewn, as already mentioned, that this state of the urine exists very frequently in connexion with diseases of the kidneys, with or without dropsy †.

[•] Wells in the Transactions of a Society for the Improvement of Medical and Chirurgical Knowledge, vol. iii.—Blackall on the Nature and Cure of Dropsy, 3d edit. 1818.

⁺ See Appendix on Dropsy.

disease is into the acute and chronic form. M. Laennec has described several varieties, which perhaps may be referred to these two heads, with the exception of the catarrhe suffocant, which may be considered, in most cases, as the peripneumonia notha of Dr Cullen and the older authors *. The connection of catarrh or bronchitis with hooping-cough and asthma, will be mentioned under these heads. That which occurs in the course of small-pox and measles has been already mentioned; and it is a common symptom in the continued fever of this country, particularly in winter and spring, when it often constitutes a great part of the danger, or prolongs very much the duration of the disease.

1051-54. The expectoration in catarrh is at first either altogether awanting or very scanty, and the sputa are commonly globular, viscid, and of a pearly colour. This appearance is most remarkable in that variety to which M. Laennec has given the name of catarrhe sec. As the secretion becomes more abundant, expectoration becomes more liquid and transparent, often resembling the white of eggs. It gradually becomes opaque and more consistent, with a yellowish or greenish tinge; and in chronic bronchitis, as already mentioned, it is often impossible to distinguish it from the expectoration of phthisis pulmonalis. The secretion sometimes becomes concrete, and, by obstructing some of the branches of the bronchiæ, gives rise to sudden fits of asthma or dyspnæa, with absence of the natural sound of respiration, while that on percussion remains good, in those parts of the lungs to which these branches are distributed.

^{*} For a further account of this form of Catarrh, see Laennec, Op. cit. 2d ed. tom i. p. 200.—Badham on Bronchitis, 2d edit. p. 30, London, 1814; and Cheyne on the Pathology of the Membrane of the Larynx and Bronchiæ, p. 197, Edinburgh, 1809.

Two cases of chronic bronchitis are reported by M. Andral, in which death by asphyxia appeared to be caused by mucous concretions, which were found obstructing the canal of some of the large branches of the bronchiæ*. When the mucous surface is very extensively affected, the quantity of the secretion in the air tubes sometimes causes death by rapid suffocation; at other times the disease proves fatal in its acute stage by the extension of the inflammation into the air cells and parenchyma of the lungs, giving rise to the combination of pneumonia with bronchitis. The bronchiæ of both lungs are not frequently affected to an equal degree at the same time; but when this occurs, the disease assumes its most acute and dangerous form.

Chronic catarrh sometimes proves fatal by the exhaustion caused by long continued and profuse expectoration. It would appear also from the course of the symptoms in many cases, that chronic catarrh may readily pass into phthisis; but it is doubtful, in such cases, whether the affection of the substance of the lungs had not existed from the first; and certainly there are so many cases, particularly in persons advanced in life, where frequent cough and copious expectoration continue for a great length of time, and yet no decided disorganization of the texture of the lungs appears on dissection, that the chronic bronchitis may be regarded as one of the most striking instances of severe and long-continued disease, often confining itself to a single texture, without extending even to the parts most immediately connected with it, both in function and situation.

1057. On dissection of the bodies of persons who have died from other diseases while affected with slight or recent catarrh, there is generally found more or less of redness in

[•] On the subject of the Bronchial Secretion, see Andral, Clinique Medicale, tom. ii. p. 35-45.—Laennec, Op. cit. tom. i. p. 139.—See also Dr Cheyne, Op. cit. p. 147. Some of the bronchial polypi mentioned by him appear to have been nearly of the same nature.

a circumscribed portion of the mucous membrane; and this is most frequently observed near the bifurcation of the trachea. In its more severe form, the redness is more intense, is accompanied by some thickening and alteration of consistence, occupies a more extensive surface, and is often most marked in the smallest branches, which are loaded with opaque puriform mucus. These appearances are frequently confined to one lung, or even to a portion only of one lobe; and the bronchiæ of the upper lobe appear to be most liable to this inflammation. It is proper to observe, however, that the redness and softening of the mucous membrane often depend, to a certain extent, upon the degree of decomposition which the body has undergone; and that in those who have presented, during life, that peculiar fluidity of the blood commonly observed in scurvy, purpura, and in fevers of a typhoid or putrid character, these appearances in the bronchiæ are often well marked, even when no catarrhal symptoms have existed. In chronic catarrh, on the other hand, although the mucous membrane commonly presents a livid or violet tint, yet, in some inveterate cases, with copious puriform expectoration, and great emaciation, the lungs have been found healthy in appearance, and the bronchiæ of a pale colour, or even white throughout their whole extent, without any appreciable alteration of the mucous surface *. Ulceration, although not uncommon in the larynx in the course of phthisis laryngea or chronic inflammation of that organ, is comparatively rare in the trachea, and has seldom been observed in the bronchiæ, especially in the smaller ramifications +. This circumstance, and

^{*} Bayle, Recherches sur la Phthisie, Obs. 49. p. 392.—Laennec, Op. cit. tom. i. p. 154.—Andral, Op. cit. tom. ii. p. 3.

[†] Cayol, Recherches sur la Phthisie Trachéale, Paris, 1810.—Andral, Op. cit. tom. ii. p. 7.—Lacnnec, Op. cit. tom. i. p. 263.—Cheyne, Op. cit. p. 161.

—Abercrombie on the Pathology of Consumptive Diseases, pp. 39, 47, Edin.

the fact that the inflammatory softening of the mucous membrane is rarely well marked, while its consistence is often increased, seem to point out a difference between the character of the inflammation of the bronchiæ, and that affecting the mucous membrane of the intestines, where, on the contrary, extensive softening and ulceration are very frequently observed.

The thickening of the mucous membrane, and the secretion which take place in catarrh, give rise, according to their situation and degree, to various physical signs, as indicated by the stethoscope, to which it is proper here to allude. When the inflammation is confined to the larger branches of the bronchiæ,-when the thickening is partial, and the constriction of the tubes consequently unequal, a deep, grave, and prolonged sound is heard during respiration, resembling sometimes the sound produced in snoring, and sometimes imitating very exactly the note of the turtle dove. To this sound, M. Laennec has given the name of râle sonore ou ronflant. It appears to be caused by the passage of air through a branch of the bronchiæ, which is more contracted at its origin than in the rest of its course. It is commonly heard from the commencement of the catarrh, even before any cough or secretion takes place; and is frequently accompanied, especially when it occurs in a portion of the bronchiæ near the surface of the lungs, by a vibration communicated to the hand applied to the chest. When similar effects are produced by inflammation in branches of smaller diameter, the sound heard is necessarily more acute, and resembles sometimes the wheezing heard during a fit of asthma; sometimes the sound of whistling; and sometimes the chirping of small birds. To this sound, which varies much

Med. and Surg. Journal, vol. xvii; and Hastings on Inflammation of the Mucous Membrane of the Lungs, p. 312, London, 1820, who has detailed several cases of chronic bronchitis, with ulceration of the mucous membrane.

in tone and intensity, according to circumstances, M. Laennec has given the name of râle sibilant ou sifflement. Like the râle sonore, with which it is very commonly combined, it takes place early in the disease, before expectoration or even cough have appeared, and often continues after these symptoms have diminished, or even after they have ceased. the disease advances, and the mucous secretion is formed and accumulates in the bronchiæ, another sound is heard, to which, as it is evidently caused by the passage of air through fluid matter contained in the bronchiæ, M. Laennec has given the name of râle muqueux ou gargouillement. This sound may be compared to the râle caverneux in a tubercular excavation already described, or to the rattle in the throat of persons moribund; but when heard in the smaller branches of the bronchiæ, it is seldom so strongly marked as in an ulcerated cavity, is generally extended over a greater surface, and is not heard at a distance, as in persons moribund. It is frequently combined with the râle sonore and sibilant, and, as the disease proceeds, and the thickening and swelling of the mucous membrane diminishes, it often replaces them; it may be considered characteristic of chronic catarrh. The thickening of the mucous membrane, and consequent contraction of the cavity of a branch of the bronchiæ, are sometimes so great, as to cause obstruction to the entrance of the air into a portion of the lungs. When this is complete, the natural sound of respiration is awanting in that part, while the sound on percussion remains good. More commonly, it is not entirely suspended, but the sound of the dilatation of the air-cells becomes so faint, that it is chiefly by the obscure râle muqueux and sibilant which accompany it, that its existence can be ascertained. It sometimes happens, that the sound of respiration is suddenly suspended in a portion of the lungs, from the momentary obstruction of a bronchial ramification, by a quantity of mucus of sufficient consistence to interrupt the passage of the air. In these

cases, the sound of respiration is found to return as soon as the obstruction has been removed by coughing or expectoration. In all cases of simple catarrh, that is, when the inflammation is confined to the mucous membrane, the resonance of the chest on percussion remains natural *.

By means of these physical signs, the extent and progress, and consequently, in many cases, the severity and danger of pulmonary catarrh may be readily ascertained. The case in which bronchitis appears most frequently to extend over a large portion of the mucous membrane, without proportional danger, is that where it is complicated with spasmodic asthma, which will be afterwards considered.

In chronic catarrh, another organic alteration sometimes takes place, which was first pointed out by M. Laennec under the name of dilatation of the bronchiæ. This appears under various forms. It may be confined to one branch, or it may occupy the greater part of one lung. Sometimes the dilated bronchiæ retain their cylindrical form, while their diameter is much greater than that of the trunk from which they proceed; at other times the dilated portion assumes the form of a cavity, resembling more or less, in size and shape, a tubercular excavation. Several partial dilatations of similar form may exist in the course of one branch. They may take place in any part of the lungs, but are more commonly met with in the anterior portion of the upper lobe; and as they are often filled with puriform mucus, and communicate with each other, they have been mistaken for parts of an irregular tubercular cavity. But the mucus membrane, although generally unequal on its surface, softer than in the natural state, and of a deep violet colour, can be in most cases traced to a branch of the bronchiæ which

^{*} For further details upon the indications of the Stethoscope in Catarrh, see Laennec, Op. cit. 2d edit. tom. i. pp. 97, 145, 158; Andral, Op. cit. tom. ii. p. 11; and Williams on the Physical Signs of the Diseases of the Lungs and Pleura, p. 60.

has undergone no dilatation. It varies much, however, in thickness, consistence and colour, in different cases. M. Laennec states, that he never could distinctly see a dilatation which appeared to him to occupy the smallest divisions of the bronchiæ, and which could throw any light on the manner in which they terminate; and it appears to be very rare to any sensible extent in the common trunk of the bronchiæ, although its subdivisions are sometimes so much dilated as to equal or surpass it in diameter.

When dilatation of the bronchiæ exists to any considerable extent, the pulmonary substance in its vicinity is found compressed, flaccid, impervious to air, and similar in consistence and appearance to the state of the lungs observed when they are compressed by serous or purulent effusion in the cavity of the pleura.

M. Laennec considered this alteration as almost entirely confined to those persons who are affected with chronic catarrh, and conceived that it is the result of the pressure caused by copious and viscid mucous secretion long retained in the bronchiæ. But it has been also observed, frequently combined with emphysema of the lungs, in cases of asthma or hooping-cough, with no copious mucous secretion, and probably depends, like emphysema, chiefly upon the pressure exerted on the lungs by forcible expirations, while there is an opposition or obstruction to the free exit of the air, as during violent fits of coughing, or of asthma.

When the dilatation is considerable, and especially when it assumes the form of a cavity, the physical signs, as heard through the stethoscope, are very similar to those which indicate, as already mentioned, a tubercular excavation. But the pectoriloquism is seldom so circumscribed as in phthisis, and it generally partakes more of the character of diffuse bronchophony; nor is the respiration so distinctly cavernous, but in most cases is bronchial, or resembles the sound of respiration, as heard in the trachea. To this it may be add-

ed, that while tubercular excavations usually occupy the summit of the lungs, dilatation of the bronchiæ, which is comparatively rare, is more commonly found in those parts which correspond to the mamma, the scapula, and the axilla *.

1065-66. The period for active antiphlogistic treatment in acute bronchial inflammation is soon past; and if this practice is not employed in the early stages, the disease may prove fatal in its acute form, or it may pass into the state of chronic catarrh and resist all remedies. Dr Cullen states, in his MS. lectures, that he had "known many instances of the disease, both from cold and from contagion, very shortly and safely cured by the use of sudorifics and sweating †." Warm drinks, containing wine or spirituous liquors, which have been from time immemorial a popular remedy in catarrh, and which are strongly recommended by M. Laennec, as successful in a great number of cases, probably act as sudorifics.

In the earlier stages of chronic catarrh, topical blood-letting, blisters, tartar-emetic ointment, issues, antimonial emetics and opiates, with cool spare diet and regulated temperature, are employed with advantage. When of some standing, and attended with debility and emaciation, the treatment most commonly employed is more of the tonic kind, as by nourishing diet, with some wine, gentle exercise, change of air, cold or tepid spunging of the body, and friction, along with various tonic remedies, particularly bitters. Dr Abercrombie states, that in the dyspnœa which accompanies catarrh in elderly people, he found nothing so use-

^{*} For further details on Dilatation of the Bronchiæ, see Laennec, Op. cit. tom. i. p. 206; and Andral, Op. cit. tom. ii. p. 19.

[†] Cullen's Works by Dr Thomson, vol. ii. p. 316.

ful as moderate doses of laudanum, with a small quantity of the tartrate of antimony in solution. It is probably in cases of chronic catarrh that the inhalation of the vapour of tar, as recommended in consumption, by Sir Alexander Crichton, has been chiefly useful †.

The following additional modern works may be consulted on the inflammation of the mucous membrane of the bronchiæ:

RICHTER, On Mucous Consumption, in Medical and Surgical Observations, (translated from the German,) Edinburgh, 1794.

CABANIS, Observations sur les Affections Catarrhales, Paris, 1807.

BAYLE, Recherches sur la Phthisie Pulmonaire, p. 387-411, Paris, 1810.

Watt, On the History, Nature, and Treatment of Chincough, p. 181, Glasgow, 1813.

Armstrong, On Scarlet Fever, Measles, &c. p. 181, 2d edit. London, 1818.

Forbes, Original Cases, illustrating the use of the Stethoscope and Percussion, &c. London, 1824.

Broussais, Histoire des Phlegmasies ou Inflammations Chroniques, &c. 4^{me} edit. tom. i. Paris, 1826.

GENDRIN, Histoire Anatomique des Inflammations, tom. i. p. 545, Paris, 1826.

BRIGHT, Reports of Medical Cases, &c., p. 127, London, 1827.

1067-72. Dysentery.—Dr Cullen's definition of dysentery does not apply to all the forms of the disease, especially to that most formidable variety which occurs so frequently in

^{*} On the Pathology of Consumptive Diseases, Edin. Med. and Surg. Journal, vol. xvii. p. 53.

[†] Account of some experiments made with the vapour of boiling tar, in the cure of pulmonary consumption, Edinburgh, 1817.

tropical climates. In the acute form of tropical dysentery, as recently described by various practical writers, the evacuations, in the earlier stages at least, are frequently copious, feculent, and sometimes even natural in appearance; but in general they are of fluid consistence, and scybala are rarely observed. There is often little or no fever in the commencement of this form of the disease; and there does not appear to be any good evidence of its propagation, in ordinary circumstances at least, by contagion. Pain and tenderness, generally fixed, and more or less acute, in the hypogastric and iliac regions, but sometimes following along the whole course of the colon, is a symptom very generally present in the dysentery of warm climates, to which Dr Cullen has not alluded. As the disease advances, it assumes more of the peculiar characters which he has laid down; the evacuations become less copious, more frequent, bloody, and mucous, and often resemble the washings of flesh; they acquire a very fetid odour, and are often mixed with purulent matter, and shreds of membrane, or portions of coagulable lymph. Articles of food and drink appear often to pass little changed. In bad cases, the skin is peculiarly hot, dry, and harsh, the tongue often florid and glistening, the pulse suddenly becomes frequent, sinks rapidly in strength, and death frequently takes place in the course of the first week.

Recent authors have described two principal forms of tropical dysentery: one, in which the disease is more acute, appears to be confined to the rectum and lower part of the colon, and corresponds more nearly to the dysentery of Dr Cullen;—the other more chronic, in which it extends through the whole of the colon, and part of the small intestines, with symptoms similar to those which have been described. This form of the disease in India appears to be frequently combined with an affection of the liver, and has consequently

received the name of hepatic dysentery *. It has been supposed that there is an intimate and necessary connexion between disease of the liver, and the dysentery of warm climates. Recent observations, however, seem to have established, that this connexion, though frequent, and of much practical importance, is by no means constant †. Dr Waddell states, that, in the fatal dysentery which prevailed among the troops during the Burmese war, he did not find the liver diseased in any one of his dissections ‡; and in sixty-four cases of chronic dysentery from India, Ceylon, and the Coast of Africa, which Dr Knox had an opportunity of examining after death, he found the liver diseased in two only §. It is comparatively rare in the dysentery of this country; but during the prevalence of this disease in Ireland in 1818 and 1821, Dr Cheyne states that the liver, although in the majority of the dissections apparently sound, was diseased in a good many instances ||; and during the epidemic in Dublin in 1825, Dr O'Brien found the liver slightly diseased in six out of twelve fatal cases ¶. Dr Abercrombie states, that he has never, except in one chronic case, seen the liver affected in dissections of cases of dysentery **.

The dysentery of this country consists essentially in an inflammation of the mucous membrane, principally of the

[•] See Annesley's Researches on the more prevalent Diseases of India, vol. ii. p. 197.

[†] See Appendix on Hepatitis, p. 503.

[‡] On the Diseases which prevailed among the British Troops at Rangoon; Transactions of the Medical and Physical Society of Calcutta, vol. iii. p. 250.

[§] Dr Abercrombie's Pathological and Practical Researches on Diseases of the Stomach, the Intestinal Canal, &c. p. 250, Edinburgh, 1828.

^{||} On the Dysentery as it appeared in Dublin, &c. in 1818 and 1821; Dublin Hospital Reports, vol. iii.

[¶] On the Epidemic Dysentery which prevailed in Dublin in 1825. Trans. of the Association of Fellows and Licentiates of King's and Queen's Colleges, vol. v.

^{••} Op. cit. p. 250.

large intestines; but it is subject to great variety in its characters, its intensity, and its duration. In many cases, which commence with the true dysenteric symptoms as laid down by Dr Cullen, the disease, perhaps confined to the rectum or lower part of the colon, is attended with little fever or danger, yielding readily to gentle laxatives, followed by opiates. In other cases it commences with the symptoms of common continued fever; and after a longer or shorter time, gradually, or sometimes suddenly, assumes the form of true dysentery, with typhoid symptoms, and rapid sinking of the vital powers. Such cases are very generally quickly fatal, and are probably often combined with contagious fever *.

Some severe cases begin as diarrhœa, or even cholera, and afterwards assume the dysenteric form; while others, which begin as the dysentery of Dr Cullen, pass into the form of intractable diarrhœa, which soon becomes chronic, and often admits of but little alleviation. This is sometimes accompanied by aphthæ, which do not appear to be confined to the mouth and fauces, and it finally proves fatal by progressive emaciation and exhaustion. In such cases, vomiting often supervenes late in the disease, and is a very bad symptom. The evacuations in these cases are often pretty copious, feculent, and passed with little or no tenesmus; but frequently contain either a little blood or puriform matter. The appearance of scybala is by no means a frequent occurrence. There is usually some pain or tenderness in the hypogastrium, or in the course of the colon, without wellmarked febrile symptoms. It may be said, in general, that the severity and danger of dysentery is in proportion to the extent of the mucous membrane affected.

The appearances on dissection are also various in degree and extent. The colon is frequently found uniformly dis-

^{*} See Barker and Cheyne on the Epidemic Fever in Ireland, vol. i. pp. 267, 412, 436, London, 1821.

tended, or alternately dilated and constricted throughout its whole course. The inflammation in some cases extends to the peritoneal surface, causing adhesion to the neighbouring parts, or ulceration and perforation of the serous coat, and consequent effusion of the contents of the intestines into the cavity of the abdomen. When this occurs, it proves rapidly fatal, by giving rise to acute peritonitis *. The morbid alterations on the inner surface often appear through the peritoneal coat, imparting a livid or gangrenous colour to its surface. But the principal seat of the disease is always in the mucous and muscular coats, which frequently present every morbid alteration of structure consequent upon inflammation -increased vascularity-thickening-elevation, often presenting a fungoid appearance—distinct effusions of lymph, sometimes described as small tubercles, or, in the language of the old pathologists, pustules-sometimes as aphthous crusts, or irregular whitish layers __irregular or circumscribed ulceration of very various extent-sometimes superficial, at other times extending through the muscular coatwith every shade of colour, from the bright red of acute and recent inflammation, to the livid or black colour of gangrene. These appearances are not unfrequently found extending through the whole course of the large intestines, but occur, perhaps most commonly, in the caput cæcum, and the ascending and descending colon. They are sometimes observed to extend for some distance into the small intestines. Scybala are seldom found in any part of the intestinal canal +.

^{*} See Louis, Recherches Anatomico-Pathologiques, p. 136; De la Perforation de l'Intestin Grêle, Paris, 1826.

[†] For a further account of the morbid appearances, see Dr Abercrombie, Op. cit. p. 227; Dr Cheyne, Op. cit. p. 28; Dr O'Brien, Op. cit.; Dr Ballingall on Fever, Dysentery, &c. p. 53; and Mr Annesley, Op. cit. vol. ii. p. 255.

1075-76. The contagious nature of dysentery, as laid down by Dr Cullen, has been strongly disputed. It appears evident from the experience of many army practitioners, on a large scale, that, although in certain circumstances it may become contagious, it is possessed of no very active contagious property; and that the greater number of instances, where the disease has been very prevalent, are to be ascribed to some other cause, acting on many persons simultaneously *.

But it is much more difficult to ascertain whether this cause is merely the action of cold, as Dr Cullen has stated, particularly along with moisture and after great heat +; or whether there is any other influence, prevailing only at certain times, (such as Sydenham called a constitution of the atmosphere,) concerned in the production of this disease. It is certain that dysentery prevails much more generally, and with greater severity in some years than in others, without any remarkable differences of weather. This has been ex-

^{*} See Dr Fergusson on the Mercurial Treatment of Dysentery, Medico-Chirurgical Transactions, vol. ii.—Dr Somers, Suggestions for the Treatment of Dysentery, p. 42, London, 1816.—Mr Bampfield on Tropical Dysentery, p. 57, London, 1819.—Dr Ballingall, Op. cit. p. 40.—Mr Annesley, Op. cit. vol. ii. p. 247.—And Dr Luscombe on the Health of Soldiers, Edinburgh, 1821. "A contagious disorder," says this last author, "usually commences in a few persons only; and extending from them to others, the cases gradually become more and more numerous. I have, on the contrary, always seen dysentery attack great numbers at the very first appearance of the disease." "When we were near the enemy, the sick were every day sent to the rear; and notwithstanding, fresh cases of dysentery continued to occur daily, which could not have been the case had the disease been propagated from one person to another, after all those affected with the disease had been removed to a distance."

[†] On this point Dr Luscombe makes the following remark: "I invariably observed that dysentery appeared among our men after the first exposure to the rain which usually set in at the end of summer; and it is to the effects produced on the system by exposure to wet and cold, immediately after great previous excitement by the stimulus of the solar heat and light, that I am inclined to attribute the origin of camp dysentery." Op. cit. p. 46.

emplified in the epidemic which prevailed lately in Ireland, and that which prevails at present in different parts of Scotland. These epidemics, however, have been chiefly observed in summer and autumn. Some have supposed that a miasma or malaria, similar to, or often combined with, that which excites intermittent fever, may also produce dysentery *.

1077-78.—Dr Cullen seems to have laid too much stress upon the constriction of the muscular fibres of the colon, as the proximate cause of dysentery. This constriction sometimes evidently abates, (as appears from the state of the symptoms,) long before the end of the disease, and is always to be considered as itself the effect of inflammation or violent irritation in the mucous membrane, which is the true seat of the disorder.

1080-89. In the earlier stages of acute dysentery, the treatment is now decidedly antiphlogistic; and the disease is generally relieved, and often much shortened, by bloodletting, regulated by the activity of the symptoms and the constitution of the patient. After a time, however, the effects of blood-letting in this, as in other inflammations of mucous membranes, are less powerful, or even more ambiguous. A diseased action is established, which must run a certain course, but still admits of a favourable termination, if the more urgent symptoms resulting from it are palliated, and the patient's strength supported. Decided relief is often obtained from leeches, applied either to the abdomen, or to the verge of the anus, after the time for general blood-letting is past. This last practice is much employed on the Continent, as being the most direct mode of topical bloodletting in inflammatory affections of the large intestines, and has been strongly recommended by late writers on tro-

[•] Dr Archibald Robertson on the Medical Topography of New Orleans, in Johnson on the Influence of Tropical Climates, p. 444, London, 1818.

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pical dysentery. It has not perhaps been sufficiently tried in this country.

Laxatives are useful, chiefly in the early stages, to remove the additional irritation of retained fæces, and are not to be considered, as formerly, the most essential part of the treatment. Those best recommended in this disease are, castor oil, supertartrate of potass, sulphate of magnesia, and phosphate of soda. The use of opium is generally allowed now to be more important than Dr Cullen supposed. It is often necessary to continue its use, at intervals, for a great length of time, both by the mouth and in the form of glyster or suppository. Dover's powder is one of the best forms in which it can be given; but it is sometimes not easily retained. Other astringents, both vegetable and metallic, are employed, especially in the more advanced stages of the disease. The last can be given in smaller doses, and are more easily retained. Those most used at present are the acetate of lead and the sulphate of copper; and they are usually combined with opium. Lime-water, the compound powder of alum and kino, and nitric acid combined with opiates, are also employed.

Calomel is much used in India, and by some practitioners in this country. It is given in large doses at first, as from ten grains to a scruple, several times in the twenty-four hours; and afterwards in small doses with opium or Dover's powder during the later stages, in such a way as to affect the mouth *. The first practice is probably useful chiefly in the complication of dysentery with liver disease, which is not so common as has been represented. The second practice certainly appears to be sometimes effectual; but from its occasional irritating effects on the bowels, it re-

^{*} See Dr Fergusson on the Mercurial Treatment of Dysentery, Medico-Chirurgical Transactions, vol. ii.—Dr James Johnson on the Influence of Tropical Climates, p. 211-217,—and the works of Dr Ballingall, Mr Bampfield, and Mr Annesley, already mentioned.

quires caution, and the circumstances to which it is peculiarly adapted are not well ascertained *. Benefit is obtained from the support given by swathing the abdomen with broad flannel bandages; and the pain and tenesmus are frequently relieved by the warm bath †.

The following modern works may be consulted on the subject of dysentery, in addition to those already mention-

ed:

Desgenettes, Histoire Médicale de l'Armée d'Orient, 2^{de} partie, p. 21, Paris, 1802.

DEWAR, On the Dysentery in the British Army in Egypt, London, 1803.

MACGREGOR, (SIR JAMES,) Medical Sketches of the Expedition to Egypt from India, p. 181, London, 1804.

HARTY, On the Dysentery, London, 1805.

CURTIS, (CHARLES,) On the Diseases of India, Edinburgh, 1807.

PEMBERTON, On the Abdominal Viscera, p. 140, London, 1814.

Armstrong, On Typhus Fever, &c. p. 372, 3d edit. London, 1819. Broussais, Histoire des Phlegmasies ou Inflammations Chroniques,

• 3me edit. tome iii. pp. 19-47, Paris, 1819.

Chisholm, On the Climate and Diseases of Tropical Countries, 1822. Frank, (L.) De Peste, Dysenteria, &c. Vienna, 1822.

O'Brien, Observations on the Acute and Chronic Dysentery of Ireland, Dublin, 1822.

CHOMEL, Dictionnaire de Médecine, Article *Dysenterie*, vol. vii. 1823. BILLARD, De la Membrane Muqueuse Gastro-Intestinale, Paris, 1825.

Gendrin, Histoire Anatomique des Inflammations, Paris, 1826.

[•] An epidemic affection of the bowels, sometimes assuming the form of dysentery, the causes of which were very obscure, but in which the good effects of mercury seem to have been satisfactorily ascertained, occurred lately in the Penitentiary in London. See Dr P. Mere Latham's Account of the Disease lately prevalent at the General Penitentiary, p. 62, London, 1825.

[†] For further details on the treatment of dysentery, see Dr Cheyne on the Dysentery of 1818, Dublin Hospital Reports, vol. iii. p. 40; and Dr Abercrombie, Pathological and Practical Researches on Diseases of the Stomach, Intestinal Canal, &c. p. 276.



NOTES

ON THAT PART OF THE APPENDIX WRITTEN BY THE LATE DR CULLEN.

Page 393. Note on section 33.—These expressions are perhaps too strong. Physicians have, in a great measure, ceased to speculate on a subject of which only a very imperfect account can be given; but if we except the introduction of the vis naturæ medicatrix, (which may be considered as the substitution of a final for a physical cause,) the essential parts of the theory of Hoffman and Cullen, as to the proximate cause of fever, appear to have a foundation in nature. That Dr Cullen was aware of, and acknowledged, his obligation to Hoffman, appears from his preface to this work.

Page 423. Note on section 334.—It may appear to many, and to those, especially, who are already actively employed in the exercise of their profession, and who have not the time or opportunities requisite for acquiring a knowledge of its indications, that the importance of the Stethoscope in affections of the chest has been here overrated; and it is certain that there are few cases in which it can lead to any important practical result, as many of its indications depend essentially upon organic alteration, which is beyond the reach of art. But it enables us, in many cases, to ascertain with so much more precision than can be obtained without its assistance, the nature, the extent, the progress, and the effect of diseased action within the chest, that it will probably always be an object of interest to those who are engaged in the study of their profession, and who enjoy the opportunities, and possess the zeal necessary to acquire a competent knowledge of its indications.

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The "First Lines" were intended principally for the use of students; and with a similar view it was the intention of the late Dr Cullen, (which he had partly fulfilled,) to have taken notice, as he proceeded, of the assistance given by means of the stethoscope in the diagnosis of the different affections of the pleura, lungs and heart. Having enjoyed the advantage of studying for a considerable time under the immediate tuition of the late M. Laennec, it has been my endeavour, likewise, in that part of the Appendix which has fallen to my share, to describe, as clearly and concisely as possible, the most important physical signs which it affords, and to point out the advantages which can be rationally expected to result from its use.

Page 426, line 22. This is by no means ascertained, and is probably incorrect; as there is reason to believe, in opposition to the opinion of M. Laennec, that the contraction of the auricles is either not perceived by the application of the hand to the chest, or is felt continuously with that of the ventricles, and that the two contractions communicate only one sensation. See Mr J. W. Turner on the Motions of the Heart, Edinburgh Medico-Chirurgical Transactions, vol. iii. part i. page 205.

Page 483, line 8 .- It would even appear, according to the numerical statements of MM. Bousquet and Miquel, that the mortality in the wards of M. Broussais has been greater than that of his colleagues at the Hospital of the Val-de-grâce. See the Revue Médicale, 1827. Since the peculiar doctrines of M. Broussais were first promulgated, they have undergone considerable modification, both by their author and by others who have adopted his views. It is now allowed by many of his followers, that the point de départ, or local origin of fevers, is not confined to the mucous membrane of the stomach and bowels. Thus modified, their opinions are nearly similar to those of some physicians in this country, and particularly of Dr Mills. See his Essay on the Utility of Blood-letting in Fever, with some inquiry into the seat and nature of this disorder, Dublin, 1813. To M. Broussais, however, is due the merit of having strongly directed the attention of the profession to the affection of the mucous membrane which occurs in the course of fever. This, although comparatively rare in Scotland at least, is very frequent in France. One of the first

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works published on this subject is that of MM. Petit and Serres, entitled, Traité de la Fièvre Entéro-Mésentérique, Paris, 1813.

Page 487, line 29.—It would be more correct to say, that inflammation forms a part of the puerperal fever here mentioned. It appears that in such epidemics, although the peritonæum is probably always inflamed, the marks of inflammation which it presents often bear no proportion to the severity of the febrile symptoms, and the rapidity of the fatal termination.

P. 491. Note on the definition of Hepatitis.—On this subject, Dr Cullen, in his MS. lectures, says, "I have found it extremely difficult to form a character of this disease, which would apply to all the variety of cases which may occur. Scarcely any of the characters given, when taken separately, are decisive and determinate, and they must be taken together in combination. The 'hypochondrii dextritensio et dolor,' are the most certain symptoms of hepatitis; but there is a fallacy here in two respects: The first is, that the liver may extend even into the left side of the hypochondrium, and if that portion is affected, we may be mistaken, if we judge merely by the seat. And even the pain in the right hypochondrium may arise from an affection of the stomach or colon, these being contiguous to the liver." See Cullen's Works by Dr Thomson, vol. ii. p. 77.

Page 496. Note on section 418.—Dr Cullen appears to have been well acquainted with the distinction betwixt the parenchymatous and the membranous inflammation of the liver, but considered the last to be the most important. He was of opinion, that where, on dissection, an abscess or collection of pus appeared in the liver, in ninety-nine cases out of an hundred there were no previous marks of inflammation; and he therefore concluded that the parenchymatous inflammation of the liver is a chronic affection connected with some congestion, and not in any case an object of our practice, as a primary inflammation. See Cullen's Works by Dr Thomson, vol. ii. p. 80.

Page 496. Note on section 419.—It would perhaps be more correct to say, that the termination of hepatitis in purulent infiltration is a rare occurrence. The formation of abscesses containing purulent mat-

ter in the liver is more frequent, (as appears from the continuation of the Appendix on hepatitis,) in temperate climates than has been commonly supposed; and has been observed to occur suddenly, as after external injury, in cases where there existed during life no suspicion of previous tubercular disease, and where, on dissection, the appearances found could only be referred to acute inflammation. Some cases of gangrene of the liver are recorded by the older authors, particularly by Morgagni, Lieutaud and Portal; but it may be doubtful how far some of these descriptions of morbid appearances are to be depended upon. Of more modern authors, both in Europe and in tropical climates, M. Andral is the only one I am acquainted with who has met with this termination of hepatitis, and that only in a single case. See Clinique Médicale, tom. iv. p. 253.

The following Definitions, at the commencement of the respective chapters, have been inadvertently omitted:

- G. XXVII. VARICELLA.—Synocha. Papulæ post brevem febriculam erumpentes, in pustulas variolæ similes, sed vix in suppurationem euntes; post paucos dies in squamulas, nulla cicatrice relicta, desinentes.
- G. XXVIII. Rubeola.—Synocha contagiosa cum sternutatione, epiphora, et tussi sicca, rauca.

Quarto die, vel paulo serius, erumpunt papulæ exiguæ, confertæ, vix eminentes, et post tres dies in squamulas furfuraceas minimas abeuntes.

- Sp. 1. Rubeola (vulgaris) papulis minimis, confluentibus, corymbosis, vix eminentibus.
 - Sp. 2. Rubeola (variolodes) papulis discretis eminentibus.

END OF THE FIRST VOLUME.









Edustron Bickonary Hacintosh " Grage

